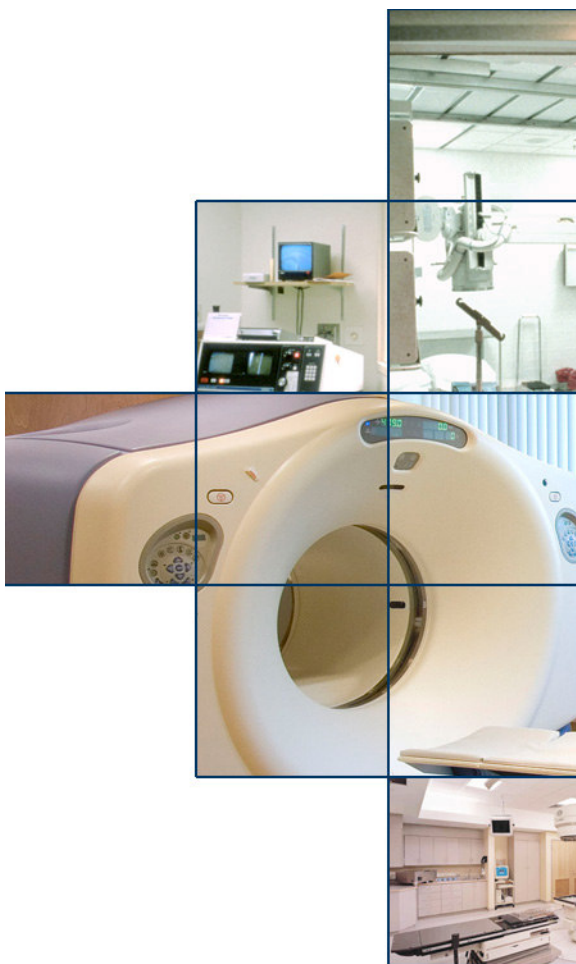




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Foreword

The material contained in the Radiology Service Design Guide is the culmination of a partnering effort by the Department of Veterans Affairs Veterans Health Administration and the Facilities Quality Office. The goal of the Design Guide is to ensure the quality of VA facilities while controlling construction and operating costs.

This document is intended to be used as a guide and as a supplement to current technical manuals and other VA criteria in the planning of the Radiology Service. **The Design Guide is not to be used as a standard design, and the use of this Design Guide does not limit the project Architect's and Engineer's responsibilities to develop a complete and accurate project design that best meets the user's needs and the applicable code requirements.**

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Washington, DC

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Introduction

The Radiology Service Design Guide was developed as a tool to assist Contracting Officers, Medical Center Staff, and Architects and Planners with the design and construction of Radiology Service facilities. It is not intended to be project specific; but rather provide an overview with respect to the design and construction of Radiology Service facilities.

Guide plates for various rooms within the Radiology Service are included in this chapter to illustrate typical VA furniture, equipment, and personnel space needs. They are not project specific as it is not possible to foresee future requirements. The project specific space program is the basis of design for an individual project. It is important to note that the guide plates are intended as a generic graphic representation only.

Equipment manufacturers should be consulted for actual dimensions, utilities, shielding, and other requirements as they relate to specified equipment. Use of this design guide does not supersede the project architects' and engineers' responsibilities to develop a complete and accurate design that meets the user's needs and complies with appropriate code requirements.

Definitions

Angiographic Room: A radiographic/fluoroscopic system with rapid filming techniques and with special capabilities for performing angiographic procedures. The system may be single-plane or bi-plane.

Chest Room - Dedicated: A specific or specialized radiographic room used for routine chest X-rays and those radiographic procedures which can or should be performed in an upright position.

Computed Radiology (CR): CR uses special plate technology, scanning and computer processing to produce a digital image of a patient's organ or body part.

Computed Tomography: The technique employing ionizing radiation to produce axial (cross section) body section images. Data obtained by X-ray transmission through the patient are computer analyzed to produce these images. The series of sectional, planar images may be manipulated to produce different planar or volumetric view of the areas of interest and eliminate overlying structures such as bone. Manipulations of data allows for the selective view of either dense tissues such as bones or diffuse tissues such as the heart, brain, or lung. CT is used for both head and body imaging and is applicable to diagnosis, biopsy, and therapy planning.

Diagnostic Radiology: The medical specialty that utilizes imaging examinations with or without ionizing radiation to affect diagnosis. Techniques include radiography, tomography, fluoroscopy, ultrasonography, mammography, interventional radiography (IR) and computed tomography (CT).

Diagnostic Room: Designated room containing diagnostic equipment performing patient procedures such as Radiographic, Radiographic/Fluoroscopic (R/F), Mammography, Ultrasound, Interventional Radiology (IR), and Computed Tomography (CT).

Digital Radiography: The capture or conversion of radiographic images in a digital format.

Fluoroscopy: The technique used to produce real time motion in either an instantaneous or stored fashion. A non-ionic contrast material is injected or consumed by the patient to enhance visualization of various organs. A constant stream of radiation passes through the patient and strikes a fluorescent screen creating shadows of the opaque internal organs. Induced motion provides a continuous or nearly continuous evaluation of the visual effects of that motion. Images produced by this modality include upper and lower gastrointestinal series, cystography, pyelography and esophageal mobility studies.

General Purpose Radiology Room: A room in which direct radiography is performed.

General Radiology: Images of the skull, chest, abdomen, spine, and extremities produced by the basic radiographic process.

Interventional Radiology (IR): The clinical subspecialty that uses fluoroscopy, CT and ultrasound to guide percutaneous (through the skin) procedures such as performing biopsies, draining fluids, inserting catheters, or dilating or stenting narrowed ducts or vessels. IR Procedures are complex, requiring a team of doctors and technicians. As such, they are often performed in the Surgical Suite, and scheduled in advance as they require special preparation. An IR / Special Procedure Room can be categorized as: Angiographic Room - an R/F system with rapid filming techniques including capabilities for performing angiographic procedures; Vascular / Neuro-radiology Room - a diographic/fluoroscopic system with rapid film

changer and capabilities for performing a range of neuro, visceral, and peripheral procedures, single-plane or bi-plane.

Mammography: A modality utilizing ionic X-ray imaging for breast examinations.

Picture Archiving and Communication System (PACS): The digital capture, transfer and storage of diagnostic images. A PACS system consists of workstations for interpretation, image / data producing modalities, a web server for distribution, printers for film records, image servers for information transfer and holding, and an archive of off-line information. A computer network is needed to support each of these devices.

Radiography: A still patient image record utilizing ionizing radiation. The image is recorded in digital format.

Radiographic / Fluoroscopic Room: A room containing a radiographic / fluoroscopic system that produces either still photographic records or real-time images of internal body structures. Most fluoroscopy procedures are performed early in the day because of fasting requirements. After most fluoroscopy procedures have been completed, this room can be used as a general purpose room.

Stereotactic Mammography: Imaging of the breast from two slightly angled directions in order to identify a path to help guide a needle for breast biopsy. The procedure may be performed upright or with the patient lying face down. Several stereotactic pairs of X-ray images are made. Small samples of tissue are then removed from the breast using a hollow core needle or vacuum-assisted biopsy device that is precisely guided to the correct location using X-ray imaging and computer coordinates.

Ultrasound: High frequency sound waves are utilized to determine the size and shape of internal organs based on the differential rates of reflection. In addition, images can be observed in real time to reveal motion, and can include coloration of arterial and venous blood flow. Cyst aspiration and fluid removal are also procedures done with the ultrasound modality.

Abbreviations

A	Amps
AC	Air Conditioning
ABA	Architectural Barriers Act
AC/HR	Air Changes per Hour
ADA	Americans with Disability Act
ADAAG	ADA Accessibility Guidelines
A/E	Architectural / Engineering Firm
AHJ	Authority Having Jurisdiction
AIA	American Institute of Architects
ANSI	American National Standards Institute
AR	As Required
ASRAE	American Society of Heating Refrigerating & Air-Conditioning Engineers
BGSF	Building Gross Square Feet
BTU	British Thermal Unit
CARES	Capital Asset Realignment for Enhanced Services
CFM	Cubic Feet per Minute
DOE	Department of Energy
DGSF	Departmental Gross Square Feet
DVA	Department of Veterans Affairs
FAR	Floor Area Ratio
FC	Foot Candle
OCFM	Office of Construction & Facilities Management
GSF	Gross Square Feet
GSM	Gross Square Meters
HIPAA	Healthcare Insurance Portability and Accountability Act
HP	Horsepower
HVAC	Heating, Ventilating and Air Conditioning
IAQ	Indoor Air Quality
IBC	International Building Code
JCAHO	Joint Commission (on Accreditation of Healthcare Organizations)
LB	Pound, Pounds
LUX	Lumen Per Square Meter
NEC	National Electrical Code
NFPA	National Fire Protection Association
NHCU	Nursing Home Care Unit
NSF	Net Square Feet
NSM	Net Square Meters
NTS	Not to Scale

NUSIG	National Uniform Seismic Installation Guidelines
OSHA	Occupational Safety and Health Administration
RCP	Reflected Ceiling Plan
RH	Relative Humidity
SF	Square Feet, Square Foot
SMACNA	Sheet Metal and Air Conditioning Contractor's National Association
SqM	Square Meters
TIL	Technical Information Library
TV	Television
UBC	Uniform Building Code
UFAS	Uniform Federal Accessibility Standards
V	Volts
VA	Department of Veterans Affairs
VACO	Veterans Affairs Central Office
VAFM	Veterans Affairs Facilities Management
VAMC	Veterans Affairs Medical Center
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network




































LOGISITICAL CATEGORIES (LOG CATS)




















VV: Department of Veterans Affairs furnished and installed - Medical Care Appropriations

VC: Department of Veterans Affairs furnished and Contractor installed - Medical Care Appropriations for Equipment and Construction Appropriations for Installation

CC: Contractor Furnished and Installed - Construction Appropriations

CF: Construction Appropriations - Department of Veterans Affairs furnished - Installed by the Department of Veterans Affairs or Contractor

	DUPLEX RECEPTACLE, NEMA 5-20R - 20AMP - MOUNTED 450MM (18") AFF UNLESS OTHERWISE NOTED.		WALL MOUNTED TELEPHONE OUTLET-MOUNTED 1200MM (48") AFF UNLESS OTHERWISE NOTED
	DUPLEX RECEPTACLE, NEMA 5-20R - 20AMP - MOUNTED ABOVE COUNTER TOP		COMPUTER TERMINAL OUTLET - VERIFY EXACT NEEDS-PROVIDE SIGNAL AND POWER OUTLET AS REQUIRED
	DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER, NEMA 5-20R - 20 AMP - MOUNTED 450MM (18") AFF UNLESS OTHERWISE NOTED		SPEAKER-CEILING MOUNTED
	DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER, NEMA 5-20R - 20 AMP - MOUNTED ABOVE COUNTER TOP		INTERCOM OUTLET
	WEATHERPROOF DUPLEX RECEPTACLE WITH GFI, NEMA 5-20R - 20 AMP - MOUNTED ABOVE 450MM (18") AFF UNLESS OTHERWISE NOTED		NURSE CALL DOME LIGHT-CEILING MOUNTED
	QUADRAPLEX OUTLET, NEMA 5-20R - 20 AMP - MOUNTED ABOVE 450MM (18") AFF OR QUADRAPLEX OUTLET, NEMA 5-20R - 20 AMP - PEDESTAL-MOUNTED.		NURSE CALL DOME LIGHT-WALL MOUNTED
	QUADRAPLEX OUTLET, NEMA 5-20R - 20 AMP - MOUNTED ABOVE COUNTER TOP		NURSE CALL DUTY STATION
	QUADRAPLEX OUTLET WITH GROUND FAULT INTERRUPTER, NEMA 5-20R - 20AMP - MOUNTED 450MM (18") AFF UNLESS OTHERWISE NOTED		EMERGENCY NURSE CALL
	QUADRAPLEX OUTLET WITH GROUND FAULT INTERRUPTER, NEMA 5-20R - 20AMP - MOUNTED ABOVE COUNTER TOP		NURSE CALL STAFF STATION
	DUPLEX RECEPTACLE, NEMA 5-20R - 20AMP - EMERGENCY POWER-MOUNTED 450MM (18") AFF UNLESS OTHERWISE NOTED		VOLUME CONTROL-WALL MOUNTED
	QUADRAPLEX RECEPTACLE, NEMA 5-20R - 20AMP - EMERGENCY POWER		JUNCTION BOX-PURPOSE AND LOCATION AS NOTED
	SPECIAL RECEPTACLE		SUPPLY AIR DIFFUSER
	TELEVISION OUTLET		EXHAUST OR RETURN AIR REGISTER OR GRILLE
	TELEPHONE OUTLET-MOUNTED 450MM (18") AFF UNLESS OTHERWISE NOTED		EMERGENCY EXHAUST GRILLE
			THERMOSTAT
			HUMIDISTAT
			COMBINATION FAUCET HOSE BIBB
			VACUUM
			MEDICAL AIR
			OXYGEN
			ELECTRICAL STRIP MOLD - NEMA 5-20R RECEPTACLES AT 600MM (2'-0") INTERVALS

	SINGLE POLE SWITCH		WALL-MOUNTED FLUORESCENT FIXTURE
	SINGLE POLE SWITCH – SUFFIX OF a,b OR c INDICATES SEPARATE CONTROL OR FIXTURES WITH SAME DESIGNATION		2'x2' FLUORESCENT FIXTURE-EMERGENCY POWER
	DIMMER SWITCH		2'x4' FLUORESCENT FIXTURE-EMERGENCY POWER
	THREE WAY SWITCH		WALL MOUNTED FLUORESCENT FIXTURE-EMERGENCY POWER
	DOOR SWITCH		WALL MOUNTED LIGHT FIXTURE-TYPE AS NOTED
	FUSED OR UNFUSED DISCONNECT SWITCH		LIGHT FIXTURE-TYPE AS NOTED
	EMERGENCY POWER OFF (EPO) PUSH BUTTON		LIGHT FIXTURE-TYPE AS NOTED EMERGENCY POWER
	2'x2' FLUORESCENT FIXTURE		CIRCUIT BREAKER
	1'x4' FLUORESCENT FIXTURE		BATTERY POWERED CLOCK
	2'x4' FLUORESCENT FIXTURE		

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General Considerations

Overview

What is Radiology?

Radiology or radiography is a photographic process used to image anatomic structures. Instead of visible light, radiography utilizes X-ray energies which penetrate the body. These energies are absorbed at different rates by different tissue densities and are particularly effective for imaging bone and dense tissues. By varying the frequency and intensity of the X-ray energies different tissue structures can be imaged.

Many different applications of X-ray imaging technology have been developed over the years. In addition to the direct imaging technologies originally developed to print images on film, new computerized detectors have largely replaced film to produce electronic versions of the radiographic image.

By using X-ray images of a volume acquired from different angles, three-dimensional reconstructions of the object can be created. This is the technology used for Computed Tomography (CT) scanners which can create acutely detailed volumetric models of anatomy.

X-ray energies are a form of ionizing radiation that does have known health risks. However, the level of exposure from diagnostic imaging examinations, when appropriately proscribed, does not present significant health risks.

The VA Radiology service also includes ultrasound which uses non-ionizing sound waves instead of X-rays to produce images for diagnosis or to guide treatment. Design guidance for Magnetic Resonance Imaging (MRI), often co-located with radiology services, is addressed in a separate VA Design Guide.

Current Trends

The Radiology Department performs examinations and produces images from non-invasive or minimally invasive procedures performed on patients in specially equipped examination rooms. The imaging modalities associated with the Radiology Service include General Radiology, Fluoroscopy, Computer Tomography (CT), Interventional Radiology (IR), Ultrasound, and Mammography.

Diagnostic imaging procedures may be performed in several areas of the hospital or medical center, dependent upon the type or volume of examination required. Portable radiographic and fluoroscopic equipment may be used in selected instances for imaging of patients. Patient convenience and accessibility should be an integral part of the planning and design of the Radiology Department. A high percentage of the volume of this service will consist of outpatients. Flexibility and adaptability should be a main consideration when planning the facility in order to accommodate constant upgrades in equipment technology and treatment. Picture Archiving and Communication System (PACS) has become the VA standard for the capture, transfer and storage of diagnostic images. This system consists of workstations for image interpretation, a web server for distribution, printers for file records, image servers for information transfer and holding, and an archive for off-line information. PACS reading sta-

tions may be located centrally or remotely. For general viewing by physicians outside the Radiology Service, a typical flat screen monitor will suffice for the reading of images. A high-end monitor system should be provided in areas where physician viewing and diagnosis occur, either within the Radiology Service or remotely. Although some VA imaging facilities still employ conventional film technology, total conversion to PACS is anticipated and reflected in this design guide.

Future Trends

The science of Radiology has advanced greatly since its early beginnings in the late 1800's. Whereas before we were able to only image anatomy, we are now able to image function and anatomy, including the workings of organs, cells and molecules. In the near future, Radiology Departments will focus more and more on chemistry and molecular biology. This will enable earlier and more accurate detection of disease. Imaging modalities are not only emerging but also converging, and it is anticipated that merging of technologies will continue in the future.

Radiology facilities can expect that image-guidance for minimally-invasive procedures and other therapies will continue to grow. Additionally, we are likely to see increased use of hybrid modalities, such as PET/CT, which will combine anatomic and metabolic imaging management tools to create a single composite image from multiple imaging sources.

As technology advances, it is important that our imaging facilities be designed to accept whatever changes in equipment and treatment is developed. At the same time, the needs of the patient must not get lost in all this change. It is critical to provide an environment that not only addresses the requirements of technology but also addresses the needs of the patient.

Functional Considerations

Operations

Services

Radiology Imaging Services may be organized as one central department which serves emergency, outpatients, and inpatients, or as separate facilities for inpatients and outpatients.

Satellite facilities may be justified to serve the diagnostic needs of a special center of excellence, if this can be coordinated with associated and complimentary diagnostic services, to assure quality of patient care.

Imaging Processes

Diagnostic Imaging Procedures are performed on inpatients and outpatients on a regular and scheduled basis. Services are also performed on an unscheduled or STAT basis for emergency patients.

Radiographic Process

The process begins with patient arrival. Patients are checked-in and records initiated within the patient reception and scheduling area. The patient is directed or escorted to procedure rooms where imaging takes place.

The image is processed by digital electronic image processing. The electronic image is coded for patient identification and reviewed for image quality. After the quality assurance process has confirmed the quality of the image, the patient is released from Radiology Service. Radiologists and staff review the electronic images for interpretation. Diagnostic results are communicated to the ordering physician and entered into the patient records system. Image records are stored electronically and available for retrieval for consultation and follow up exam comparisons. This may be accomplished both in central viewing areas and remotely.

Patient Care Support

Providing convenient access to healthcare in a non-institutional, non-threatening environment is an objective of Radiology Services. Patient education and family consultation may be used to further reduce the stress sometimes associated with Radiology Procedures for patients who are not familiar with the Radiology process and equipment.

Space Planning

Location

Several factors should be considered when determining the location of Radiology Services within a facility. This service should be strategically located to maximize efficiency in usage. As technology is constantly changing and new methods of Imaging Services are being developed, consideration should also be given to the high probability that the area will require renovation, expansion and / or equipment replacement in the future. It is frequently more cost effective to expand an existing Imaging Service than to relocate the service completely. Thus, it is desirable to locate the service on the perimeter of a facility and where future expansion is possible. This location also provides for ease of service of existing equipment and equipment replacement as new technologies are developed. Soft space such as administrative offices and support space should be located adjacent to the high technology / diagnostic equipment areas to facilitate ease of expansion for the equipment areas.

Access

The main Radiology Service should be readily accessible to both inpatients and outpatients, and in proximity to the central vertical transportation system serving other areas of the medical facility. It should be located near Ambulatory Care, Nuclear Medicine, Outpatient Services, and the Emergency Department.

Planning Strategies

The design concept for the Radiology Service can be divided into two distinct planning strategies; the centralized work core concept and the cluster concept. The centralized work core concept is ideal for services containing twelve or less diagnostic rooms; for both general purpose and specialized procedures. This design is compact and minimizes the amount of travel required for both patients and staff. The cluster design is recommended for services contain-

ing greater than twelve diagnostic rooms. In this design, basic areas consisting of radiography, fluoroscopy, interventional procedures, and administration are clustered around two or more support areas. In both planning concepts, staff administration and support should be centralized to maximize staff and space efficiency.

General Space Planning

Patient waiting areas should be located near the main entrance to the service and provide direct access to diagnostic rooms and dressing rooms. Centralized patient check-in should be provided to simplify the patient visit for patients as well as provide for staff efficiency. Patient holding areas should be located near high volume modalities.

For those modalities which require patient preparation, thought should be given to the volume of patients requiring special preparation and whether it would be advantageous to provide dedicated preparation areas for activities such as starting IV medications or inducing anesthesia patients.

Radiology Procedure Rooms used for quick turn-a-round, high volume examinations such as chest, abdomen, and extremities should be located closest to the reception and patient waiting areas in order to decrease patient travel distance and improve patient way-finding. Rooms with longer procedure times such as Ultrasound and MRI (See Magnetic Resonance Imaging Design Guide) may be somewhat more removed. Rooms with long procedure times such as Special Procedures may be located further from the main reception and waiting areas.

All Radiology Procedure Rooms should be designed to accommodate patients with disabilities as well as space for the transfer of patients from a stretcher to the diagnostic equipment.

Radiology and Fluoroscopy may be grouped together as they utilize similar support facilities. In addition, the space and configuration of these areas are the same; allowing future interchange of Radiographic and Radiographic / Fluoroscopic rooms, as well as provisions for new technologies which may be developed in the future. CT areas should be co-located with PET / CT areas in Nuclear Medicine in order to facilitate the common use of both CT Technicians and Nuclear Medicine Technicians. Ultrasound and Mammography and their associated gowned waiting and patient toilet rooms are often co-located to satisfy patient privacy concerns.

PACS reading areas may be centrally located within the service, located remotely or both. General viewing by physicians outside the Radiology Service may be accomplished using flat-screen monitors. More detailed viewing is accomplished using a higher resolution monitors; both within the service and remotely.

All diagnostic rooms that require a ceiling support system should be designed in accordance with applicable Department of Veterans Affairs Standard CAD Details. Clear finished ceiling heights will be in accordance with the Department of Veterans Affairs Design and Construction Procedures PG-18-3. Specific ceiling supported system requirements should be closely coordinated with the equipment vendor specifications.

The Control Alcove or Control Room for each Radiology Room accommodates the controls and appropriate accessories and must provide required radiation protection for the Radiology Technician. The wall space for each control booth which faces the Radiology Room must accommodate an X-Ray shielded control window. Voice communication between the patient and the Radiology Technician should be provided. The Control Room must be positioned so

that the Technician can observe both the patient in the examination position and the controls simultaneously. The Control Area must also permit observations of the patient through the viewing window when the table is in 90 degree vertical position as well as when the table is horizontal. Whenever possible, the Control Room should be designed without a door to the Radiology Room and it must conform to NCRP standards. Local or remote specialized computer rooms or data center spaces will have additional rack-mounted PACS servers and network switching equipment. Greater floor space for equipment racks, terminations, and higher power densities with associated heat loads are anticipated for these rooms.

Technical Considerations

General

Seismic

Where required, install all components and equipment with seismic provisions as outlined in the various discipline specific VA Design manuals for healthcare projects. Refer to VA Construction Standard Handbook PG-18-03 (CD-54), "Natural Disaster Resistant Design Non-structural" for additional information. Consult with equipment vendor for specifications for anchoring imaging equipment and appurtenances, including electronic cabinets, in seismic zones.

Mycobacterium Tuberculosis

Current Center for Disease Control (CDC) requirements for design of public areas within the building to accommodate Mycobacterium Tuberculosis patients must be addressed by architectural and mechanical disciplines. Check current requirements with the VA task force on transmission of Mycobacterium Tuberculosis, TB criteria in HVAC Design Manual for Hospital Projects, and the CDC Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Healthcare Settings, 2005.

Radiology Service Space Allocation

Radiology Service space requirements are outlined in the VA Space Planning Criteria: Chapter 276 Radiology Service.

Sustainability

In 2006, the Department of Veterans Affairs joined other Federal agencies who are participating in principles outlined in the Memorandum of Understanding for the Federal Leadership in High Performance and Sustainable Buildings. The purpose of these guidelines is to encourage the use of life cycle concepts, consensus-based standards, and performance measurement and verification methods that utilize good science and lead to sustainable buildings. The goals of the members of this initiative are to establish and follow a common set of sustainable Guiding Principles for integrated design, energy performance, water conservation, indoor environmental quality, and materials aimed at helping Federal agencies and organizations:

Reduce the total ownership cost of facilities.

- Improve energy efficiency and water conservation
- Provide safe, healthy, and productive built environments
- Promote sustainable environmental stewardship

These principles should be addressed in the design of all VA facilities.

Architectural

Interior Materials and Finishes

Partitions

Interior partitions should be primarily painted gypsum wallboard on metal studs. Partitions enclosing physician offices, exam rooms, and treatment rooms should be provided with sound attenuation batts between the studs in accordance with H-18-03, VA construction standard CD 34-1, Noise Transmission Control.

Partitions, windows and doors enclosing Radiographic Rooms, CT Scanning Rooms, and Interventional Radiology rooms require radiation shielding, engineered by an appropriately certified Health Physicist. Refer to H-18-03 VA Construction Standard 64-1, X-Ray Radiation shielding and Special Control Room Requirements. Construction documents will require written certification by a registered Health Physicist.

Floors

Floors in offices, conference rooms and waiting areas should be carpet with a 4 inch high resilient base.

Floors in toilet rooms should be ceramic tile with a ceramic tile base.

Floors in Exam Rooms, Treatment Rooms, and most other spaces should be vinyl composition tile (VCT) with a 4 inch high resilient base.

Floors in Radiographic Rooms require a 4 inch deep depression to facilitate installation of the floor trench duct system.

Floors in Interventional Radiology Rooms or Radiographic Rooms intended to support image-guided or minimally-invasive procedures should be welded seam sheet flooring with an integral base.

Ceilings

Ceilings should be primarily of lay-in acoustic type. Coordinate the ceiling height requirements with the equipment manufacturer.

Wall Protection

Wall and corner guards should be used in corridors and all other areas where damage from cart and stretcher traffic is anticipated.

Interior Doors and Hardware

Interior doors should be 1 ¾ inch thick solid core flush panel wood doors or hollow metal doors in hollow metal frames.

Doorjamb, except in rooms with radiation shielding, should have hospital type sanitary stops that stop 8 inches from the floor to facilitate mopping. Hollow metal doors should be used where high impact is a concern and where fire rated doors are required. Kick / mop plates should generally be applied to both sides of the doors. Handicapped accessible hardware should be used throughout.

Refer to VA Handbook PG-18-14, Room Finishes, Door and Hardware Schedule, for additional information.

Structural

General

The size, weight and support requirements for radiology equipment vary greatly. Manufacturer data sheets should be obtained for each type of equipment under consideration. Configure framing systems to accommodate support and serviceability requirements established by the manufacturer.

Shielding

Radiation shielding is often necessary to protect adjacent occupancies. Give proper consideration to the weight of shielded partitions, doors, ceilings and floors. In some instances, structural building materials may provide adequate levels of radiation shielding in specific directions and may not require additional layers of supplemental shielding. Floor depressions and / or door jamb reinforcement are sometimes necessary.

Floor Trenching

Identify areas where floor trenching is required to receive equipment infrastructure.

Equipment

Imaging Systems

Imaging System requirements will vary for each facility and the technology may be deferred in selection / procurement.

Casework

Casework may be millwork or modular.

Casework systems should be chosen that provide flexibility for planning and utilization purposes.

Casework systems should incorporate components dimensioned for ease of multiple re-use installation applications.

Casework systems should provide for cable management and ergonomic placement of workstations and flat screen monitors.

Information Management Systems

Information Management Systems shall include elements of image retrieval, processing, storage, treatment planning, electronic patient records including patient registration, patient charges, physician order entry, and patient / staff movement.

These systems elements will require access to the main facility information system as well as the departmental local area network. A standardized structured cable system and pathway system are provided to facilitate current and future network access. All components should be planned for compatibility.

Radiology Service Space Allocation

Radiology Service space requirements are outlined in the VA Handbook 7610 Chapter 276 – Radiology Service.

Picture Archiving and Communications Systems

It is the goal of the VA to implement Picture Archiving and Communications Systems (PACS) in all VA healthcare facilities. As this conversion to PACS is implemented, some existing facilities are currently utilizing conventional film processing. It is anticipated that any significant renovation will include conversion to PACS as a basis for design.

HVAC

When HVAC services must penetrate a shielded enclosure, coordination is required between HVAC design and Health Physicist certifying the construction documents.

Operation

Air conditioning systems should be provided to heat, cool and ventilate the individual spaces, as required to satisfy the VA design criteria.

Provide a dedicated computer-type AC unit to cool the System Component room for Interventional Radiology rooms. Verify the AC requirements with equipment supplier.

Generally, lead lining in walls terminates at or below ceiling level. However, in special instances where lead linings extend higher and ducts penetrate the lining, refer to Lead Shielded Duct Requirements in the VA HVAC Design Manual.

Capacities

The number of people and the air conditioning load noted on the room design standard sheet is for the purpose of establishing the basis of design guide and its use in planning. Verify the actual number of people and the air conditioning load to agree with the project requirements.

Verify equipment AC loads based on the actual equipment furnished on the project.

Provide a minimum of two air changes/hour of outside ventilation air to all spaces.

Air Quality and Distribution

All equipment / exam rooms should have positive air pressure with respect to the adjoining areas. This is to help maintain a reduced dust environment for the electronic equipment

The transferred air should be no more than 150 cfm (71.0 liters/second) per undercut door.

Design of air distribution system shall be in accordance with criteria given in the HVAC Design Manual. Provide linear diffusers for the spaces qualified to receive linear diffusers.

Mycobacterium Tuberculosis

Refer to General Comments. Radiology waiting rooms to be minimum 12 air changes / hour supply air with all air exhausted to outdoors.

Seismic

Refer to General Comments

Noise Level

Select HVAC equipment, ductwork and air distribution devices to achieve noise levels listed in the VA HVAC Design Manual.

Plumbing

When plumbing and piping services must penetrate a shielded enclosure, coordination is required between plumbing design and Health Physicist certifying the construction documents.

Water and Waste Systems

The plumbing systems should be provided to satisfy the departmental plumbing needs.

The department's domestic cold water should be piped to all plumbing fixtures and equipment requiring this utility. A hot water return system should be provided to ensure the design temperature at the farthest outlet.

The department's plumbing fixtures and drains should be drained by gravity through soil, waste and vent stacks. In addition, the department's special waste should be drained through corrosion-resistant, flame retardant piping into either a local or centralized acid dilution tank.

When an emergency secondary water supply is required to serve as a backup for the equipment chilled water system, proper drainage and backflow prevention assemblies shall be provided.

Plumbing fixtures and equipment shall comply with the Uniform Federal Accessibility Standards (UFAS).

Medical Gas Systems

The department's medical gas outlets are shown to establish a base for the design guide and its use in planning. The engineers / designers shall verify the medical gas location and quantities for individual projects.

Fire Protection: See Life Safety

Electrical

Illumination

Illumination is typically provided utilizing recessed fluorescent luminaries with acrylic prismatic lenses. The fixtures typically use F32T8 lamps in compliance with the National Energy Policy Act of 1992, with subsequent revisions in 1998 and 2005. Lamps have a minimum color rendering index (CRI) of 85 and a color temperature of 4100 Kelvin (K), which is close to the "cool white" color temperature of 4150 K. Lighting intensities conform to the VA design criteria, the IES Lighting Handbook, and ANSI/IESNA RP-29-06, the recommended practice: Lighting For Hospitals and Healthcare Facilities. Evaluate the possibility of reducing the installed lighting levels to be in compliance with the latest edition of ASHRAE 90.1.

Viewing Rooms will typically have indirect lighting systems for visual comfort, reduced glare, reading accuracy, and critical determinations. Dimmer switches are utilized for the variable illumination level.

Lighting is typically controlled by wall mounted switches located at the entrance to the room. Dimmer switches are utilized for variable lighting levels in control and exam areas. Larger spaces may utilize multiple switching by separate switches for lighting of individual zones or areas.

For special procedure and image-guided interventional rooms, fixed or mobile procedure lighting may also be required.

Power load densities for lighting are listed by use for the mechanical HVAC load calculation purposes. Load densities should be verified for the actual design, as they may vary depending on the room configuration, fixture types, lamps and ballasts used.

Power

Power and grounding of modern medical electronic equipment, computers, and displays requires careful consideration of power quality principles. The basic need for proper voltage and frequency is supplemented by other power quality concerns, including:

- Source and load compatibility;
- Distortion of voltage and current waveforms by harmonics present in the power systems;
- Sensitivity and susceptibility of electronic equipment loads to interruptions, surges, harmonic waveform distortions, and noise (RF, EMI, etc.).

Power systems and equipment characteristics need to be evaluated to determine effective solutions to reduce the potential sources of interference, reduce the susceptibility of the load

equipment, or to apply power conditioning equipment (IEEE Std. 1100-1999, the IEEE Recommended Practice for Powering and Grounding Electronic Equipment).

Radiology Service power requirements have to be specifically coordinated with the equipment manufacturer. Separate power feeds may be required for Radiology Service computer equipment, power conditioners, and air conditioning systems. General purpose duplex receptacles are typically provided on each wall of a room or space. Workstations with personal computers (PC's) are typically provided with quadraplex receptacles for the PC, monitor, printer, or PACS workstations.

Each hospital determines which specific Radiology Service equipment needs to function during a power outage to be connected to an emergency power system. Duplex receptacles on the critical branch of the emergency power system are provided for selected pieces of equipment (such as refrigerators and PC's) to allow for limited operation during a power outage. All receptacles essential to patient safety during specific procedures should be on a critical branch even when the selected Radiology equipment is on the equipment branch. If the modality is used for interventional or emergent imaging, provide emergency power / receptacles as required to support critical equipment and patient care.

Junction boxes are provided for equipment requiring a hardwire connection. Provide shielding behind all boxes and other penetrations in shielded scanning room surfaces. Certain modular casework units are provided with a utility access module with surface mounted electrical pre-manufactured raceways, which provides a chase for wiring. Conduits and junction boxes are provided to connect to the utility access module for power wiring.

Power conditioning and uninterruptible power supplies equipment may be required for Radiology equipment, computers, or PACS workstations, where an interruption of power would not be acceptable during a specific procedure. Power conditioning and UPS equipment require physical space, working clearances, maintenance access, cooling / ventilation access, and coordination with casework.

Grounding and bonding of electrical systems in Radiology Service areas are essential to proper operation of equipment. Radiology equipment may require special configurations (e.g., "5-wire equipment connections") and a low impedance path to earth and building ground, per the equipment manufacturer's specifications.

Security and Access Control

Security and access control requirements may apply to selected areas of the Radiology Services suite. Specific Patient Privacy and HIPPA requirements may affect IT system components location, separation from non-secure components, and local staff screen or display orientation. PACS server rooms and other critical Radiology Service IT infrastructure areas may require access control systems.

Life Safety

Purpose

The life safety program should be developed to provide a reliable system to protect the building occupants, firefighting personnel, building contents, building structure, and building function. This can be accomplished by limiting the development and spread of a fire emergency to the area of origin and thereby reduce the need for total occupant evacuation.

The design aspects of the facility which relate to the fire and life safety include:

- Structural fire resistance;
- Building compartmentalization;
- Fire detection, alarm and suppression;
- Smoke control and exhaust;
- Firefighter access and facilities;
- Emergency power;
- Emergency egress and exit lighting.

New hospital construction and renovated areas of existing facilities are required to be fully protected by an automatic fire suppression system.

The minimum width of corridors in areas used by Radiology Service inpatients is 8'-0". The minimum width of corridors and passageways is 5'-0" in areas used by staff only.

Provide handrails on both sides of the corridors in patient areas.

Nurse control areas are permitted to be open to the corridors.

Waiting areas are also permitted to be open to the corridors.

Refer to the latest editions of NFPA 101 "Life Safety Code", International Building Code and additional standards published by the National Fire Protection Association (NFPA).

Energy Conservation

The HVAC, Plumbing, Power and Lighting Systems should be designed for overall energy efficiency and lowest life-cycle cost. This should include the use of high efficiency equipment and fixtures and a programmable control system. The minimum energy standard shall be the latest edition of ASHRAE/IESNA Standard 90.1.

Communications

Telephone

Telephone outlets are typically provided at each workstation or in each room. Desk outlets are 18" AFF and wall phone outlets are 48" AFF. Desk outlets may be combined with modular data ports into a single-gang outlet. Infrastructure will be extended to local telecommunications room via available pathways utilizing cable tray, sleeves through fire / smoke partitions, and conduit stubs / backboxes to work area. Certain modular casework units are provided with a utility access module that houses communication outlets and provides a chase for cabling. Conduits and junction boxes are provided to connect to the utility access module for telephone service. Current technologies such as "voice over internet protocol", or VoIP, and IP wireless systems require coordination with the ADP/LAN telecommunications infrastructure.

Automatic Data Processing (ADP)

ADP, or computer outlets, are typically provided at each workstation with a personal computer (PC) and/or printer. ADP includes local area networks (LAN's), PACS applications, and wireless LAN's (WLAN). Desk outlets are 18" AFF. Multi-port telecommunications outlets are provided in accordance with BICSI and ANSI-EIA/TIA standards for telecommunications. Infrastructure will be extended to local telecommunications room via available pathways utilizing cable tray, sleeves through fire / smoke partitions, and conduit stubs / back-boxes to work area. Certain modular casework units are provided with a utility access module that houses communication outlets and provides a chase for cabling. Conduits and junction boxes are provided to connect the utility access module for ADP service. Cable and jack identification and color coding are essential to proper administration of the ADP systems.

Public Address

The Radiology Service will not have an independent public address (PA) system. The department paging and public address will be included as part of the hospital-wide PA system. Speakers are typically located in corridors and public spaces. The actual system configuration will depend on the overall design layout and the functional requirements.

Miscellaneous Systems

A local sound system may be provided for selected Radiology procedure room to provide background music during the procedure. Nurse call and/or intercom systems may be provided for communications between the control room and the procedure room. A closed circuit TV system may be provided for direct observation of the patient during the procedure. Other systems, such as MATV, CATV, or local digital video monitoring may be provided.

Waste Management

Medical Waste

Medical waste is generated in exam and treatment spaces where it is bagged, collected and transported to the soiled utility rooms. Then it is held in separate containers pending transport to the medical waste handling facility.

General Waste

General waste is generated in all spaces and is held in containers for collection and sorting into carts or bagged and placed in a waste chute and transported to the waste handling facility.

Recycling

Methods for sorting, collecting, transporting and disposing of recyclable products must be specifically analyzed for each facility and location.

The optional use of disposable and reusable products should be considered.

Soiled Linen

Soiled reusable linens are generated in exam rooms, treatment spaces, and patient and staff gowning areas. They are collected in carts or hampers in the soiled utility room; or bagged and transported to (a) central collection area(s) via soiled linen chutes or carts.

Disposable linens are included with either general recyclable waste or medical waste as appropriate.

Utensils

Reusable utensils include bedpans, urinals, emesis basins and other stainless steel items, which are used in exam and treatment areas. They are transported to the soiled utility room where they are processed (if steam washers are available) or collected for reprocessing and transported to the Sterile Processing Department.

Space Requirements

Space requirements will vary with the selection of waste collection and recycling methods / systems. Space requirements need to be analyzed for each optional method or system considered for new and existing facilities.

Transportation**Patient**

Gowning areas with lockers for inpatient and outpatient should be provided.

Outpatient

Convenient access from patient parking and primary care entrance should be considered.

Passenger elevator access to Radiology Service facilities should be located off main entrance levels.

Techniques like clear access routes, public spaces, landmarks and signage facilitate way finding.

Inpatient

Stretcher and wheelchair patients should be separated from ambulatory patients where possible.

Inpatients arrive at a control point common with outpatients. Separate waiting is provided for inpatients.

Inpatients access patient holding through a dedicated route, which is separated from outpatient waiting.

Staff

Staff access should be separated from patient waiting and holding areas.

Staff lounge and locker areas should be located away from inpatient and outpatient traffic and gantry rooms.

Records

Radiology Service utilizes digital imaging and retrieval techniques.

Viewing, interpretation and video image manipulation areas should have data communication access and PACS provisions at designated PACS workstations.

Pharmaceuticals

Pharmaceuticals, including narcotics, are transported by pharmacy personnel in locked carts or by a robotic system to the department.

Narcotics are delivered to a narcotics locker which is located in a clean supply or patient prep area and is remotely alarmed to the nearest nursing control station. Network access is provided at the Pharmacy dispensing location.

Materials

Clean supplies are transported by exchange carts which are stored in the Clean Supply Room.

Supplies are transported by Service Elevator and through hospital corridors separated from patient traffic where possible.

Deliveries are scheduled during hours when patient visits are not scheduled.

Linen

Disposable linens are delivered as part of clean supplies.

Sterile Supplies

The use of sterile supplies is minimal as is accommodated by prepackaged or disposable items delivered with clean supplies.

Food

Meal and nourishment deliveries to Radiology Service are not required.

Waste

Waste is collected by housekeeping staff and transported to the Soiled Utility Room, from where it is disposed.

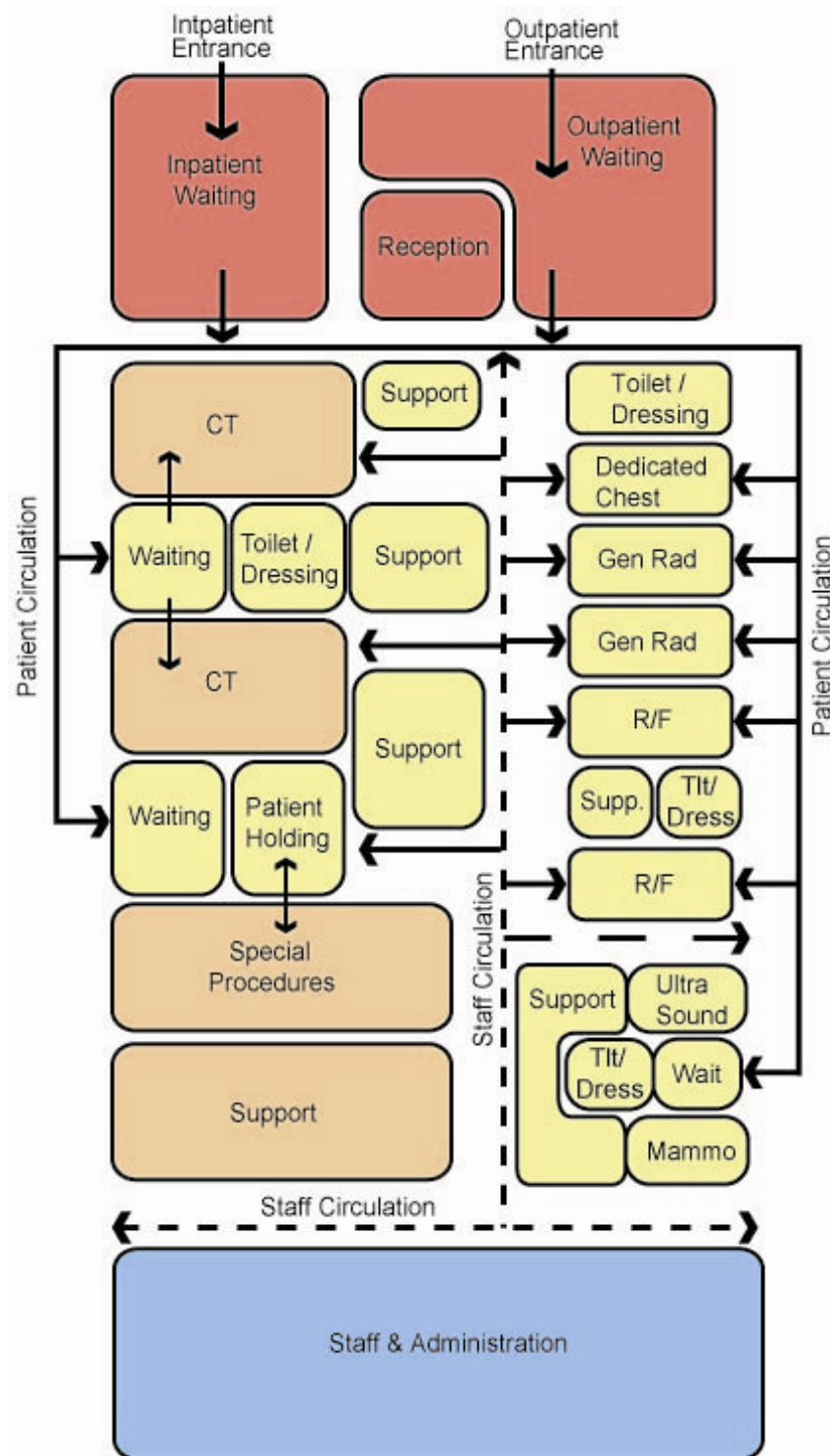
Section 3: Functional Diagrams

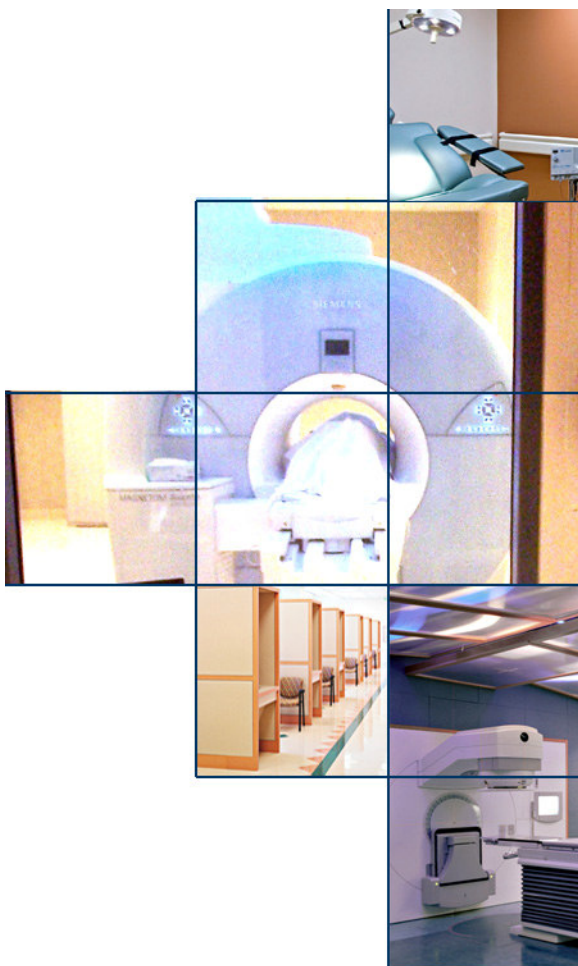
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Radiology Service

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RADIOLOGY SERVICE: Functional Diagram





Section 4: Guide Plates

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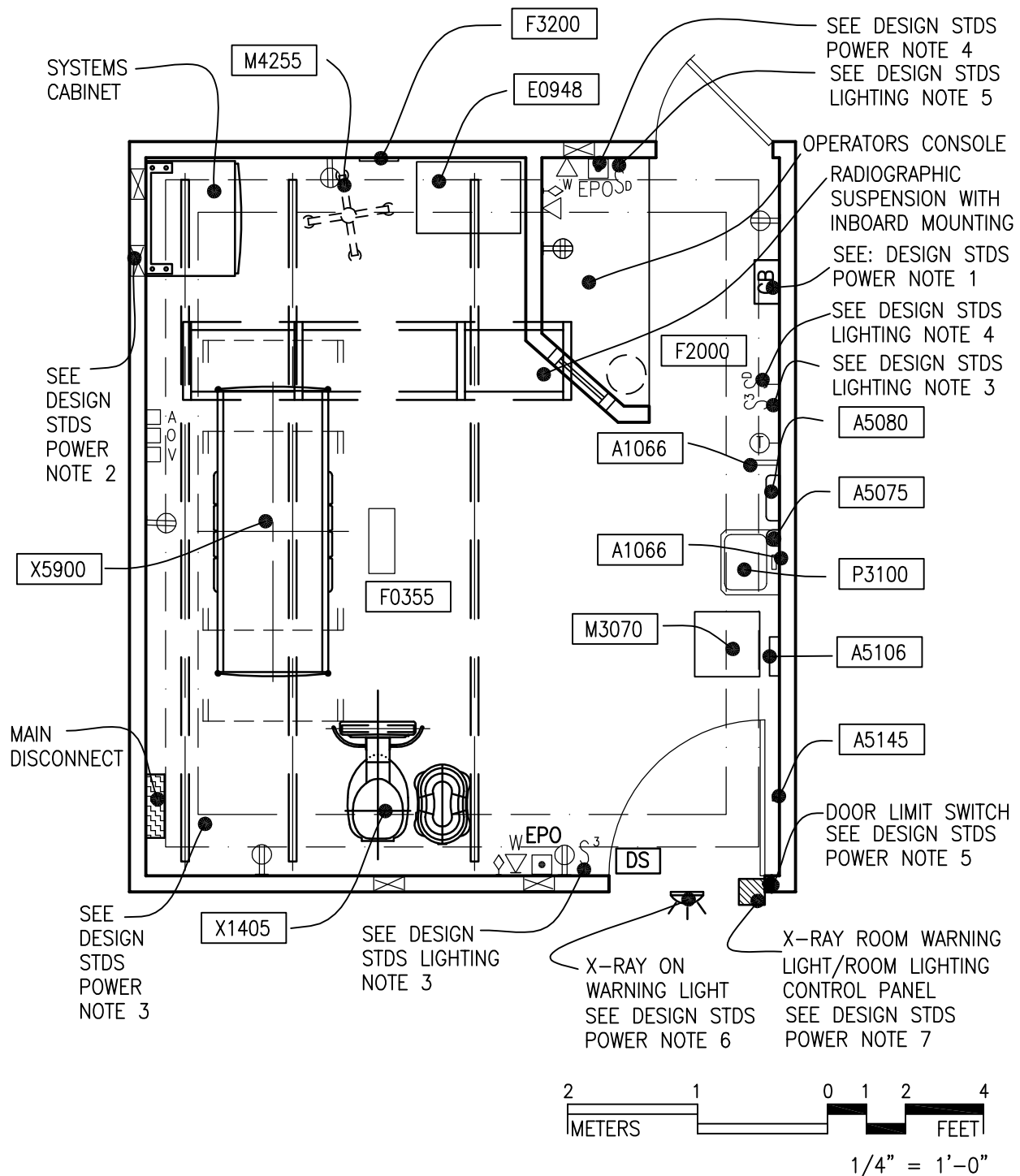
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General Purpose Radiology Room (XDR01)

300 NSF

Floor Plan

27.9 NSM



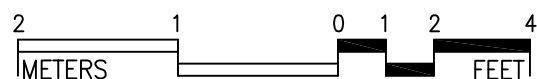
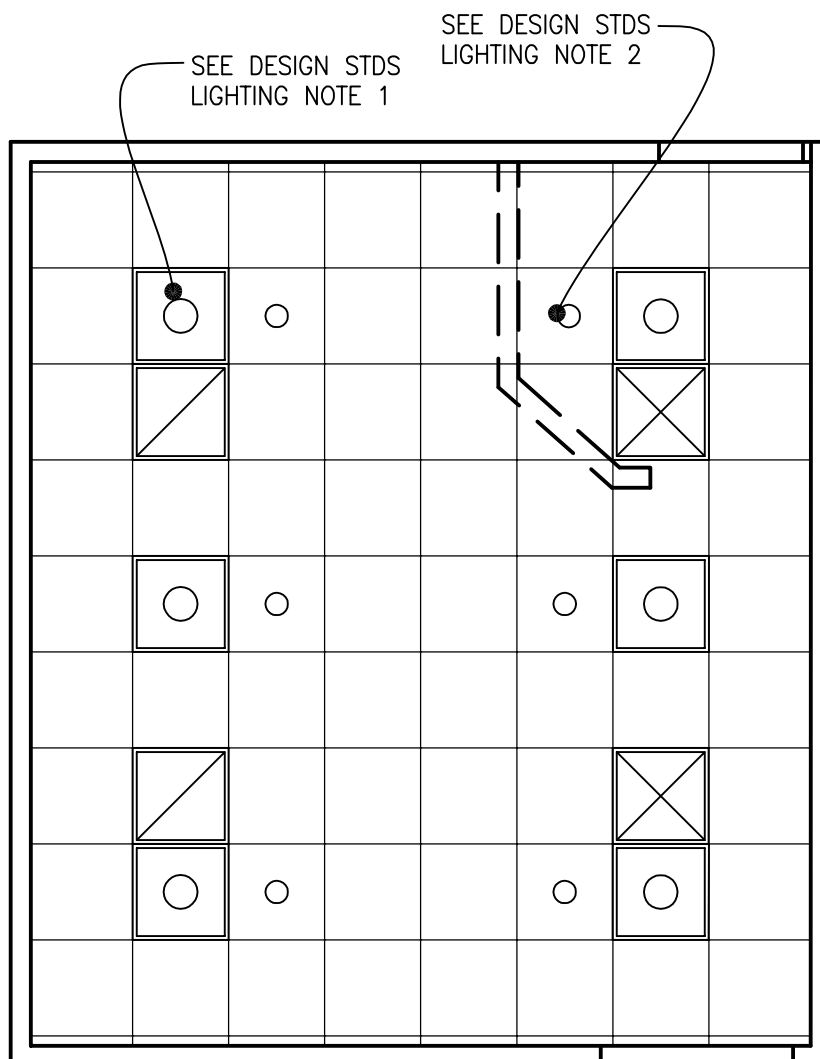
Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.

General Purpose Radiology Room (XDR01)

300 NSF

Reflected Ceiling Plan

27.9 NSM



1/4" = 1'-0"

The locations and quantities of the air outlets and inlets are tentative and may not represent the optimum design solution(s) envisioned by the designer, who shall study the layout, calculate air volumes, and may alter the arrangement shown in the reflected ceiling plan, as required, to produce a project-specific air distribution system design.

Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.



GENERAL PURPOSE RADIOGRAPHIC ROOM (XDR01): Design Standards

ARCHITECTURAL

Ceiling:	Acoustical Tile Ceiling
Ceiling Height:	Coordinate with Equipment Manufacturer
Wall Finish:	Paint
Wainscot:	--
Base:	Vinyl
Floor Finish:	Vinyl Composition Tile
Sound Protection:	--

Notes:

1. Provide a 4'-0" wide shielded door into the General Purpose Radiographic Room.
2. Provide a shielded viewing window from the Control Area to the General Purpose Radiographic Room.

LIGHTING

General: Fluorescent lights will provide higher illumination level up to 50 FC during patient transfer on and from the table, equipment setting, room cleaning, and equipment maintenance.

Special: Incandescent luminaires controlled by dimmer will provide lower illumination levels down to 5 FC during X-ray tube aiming and scanning. Warmer light color will enhance skin appearance and increase patient comfort.

Luminaires shall be located to avoid conflict with radiographic equipment ceiling tracks.

Notes:

1. 2'x2' fluorescent recessed luminaire, acrylic prismatic lens, with (2) FB031T8-U lamps, 4100 K, CRI=85 (minimum)
2. 8-inch diameter., recessed incandescent downlight, with recessed Fresnel lens, and 150W/A21 inc. horizontally mounted lamp.
3. Fluorescent lighting controlled by 3-way switches located at entrance door and in control area

4. Incandescent down lighting in X-ray room controlled by dimmer located in X-ray room.
5. Incandescent down lighting in control area controlled by separate dimmer located in control area.

POWER

The electrical power as shown is to be used as a guide only. Equipment locations, dimensions and wiring requirements should be per the x-ray system suppliers' equipment drawings. Electrical trades should provide necessary conduits, openings, bushings, nipples, flexible conduits, surface, recessed, wall mounted and floor raceways, etc., as required at the various junction boxes, duct and conduit terminations to allow proper connections of the x-ray equipment and related accessories.

Emergency:

Emergency power for x-ray equipment, controls, and selected receptacles as determined by the Hospital.

Notes:

1. 480V, 3P-150A circuit breaker, with adjustable trip, shunt trip, flush mounted. Run empty 50 mm (2"C) from circuit breaker to x-ray duct above finished ceiling.
2. 250 mm x 140 mm (10" W x 5-1/2" D) flush vertical wall duct with 300 mm (12") wide screw-on cover. Connect to x-ray duct above finished ceiling and terminate at finished floor.
3. 250 mm x 140 mm (10" W x 5-1/2" D) x-ray duct above finished ceiling with 250 mm (10") wide screw-on cover. Connect to vertical wall duct.
4. Emergency Power Off pushbutton station. Refer to specific radiology equipment requirements for EPO. Connect to shunt trip at main disconnect.
5. Door switch with NO/NC contacts. Connect to x-ray machine control circuit. X-ray machine should shut-off upon opening of the entrance door.

6. Warning light with wording "X-RAY ON DO NOT ENTER". Provide power, interface with x-ray machine via interface relay.
7. X-ray warning light interface relay with low voltage power supply to match x-ray equipment requirements.

COMMUNICATION/SPECIAL SYSTEMS

ADP:	Yes
Data:	Yes
Telephone:	Yes
Intercom:	--
Nurse Call:	--
Public Address:	--
Radio/Entertainment:	--
MATV:	--
CCTV:	--
MID:	--
Security/Duress:	--
VTEL:	--
VA Satellite TV:	--

Notes:

PACS: two 4-port telecommunication outlets per PACS station

HEATING, VENTILATING AND AIR CONDITIONING

Inside Design Conditions:	70 °F - 75 °F (21 °C - 24 °)
	30% to 60% Relative humidity
Minimum Air Changes per hour:	6
	- Supply Air
100% Exhaust:	No-See Note 2
100% Outside air	No-See Note 2
Room Air Balance:	Positive
Dedicated Exhaust System:	No
Occupancy:	4 people
AC Load-Equipment:	5,000 Btuh – 13,500 Btuh (1,500W- 4000 W)
AC Load-Lighting:	1.6 W/SF (17 W/M ²)

Notes:

1. Verify cooling loads and other specific requirements with the equipment manufacturer on a specific project.
2. Refer also to general requirements for mycobacterium tuberculosis in Radiology Department and HVAC Design Manual "TB Criteria".

PLUMBING AND MEDICAL GASES

Cold Water:	Yes
Hot Water:	Yes
Laboratory Air:	--
Laboratory Vacuum:	--
Sanitary Drain:	Yes
Reagent grade Water:	Possible
Medical Air:	Yes
Medical Vacuum:	Yes
Oxygen:	Yes

Notes:

GENERAL PURPOSE RADIOGRAPHIC ROOM (XDR01): Equipment Guide List

JSN	NAME	QTY	ACQ / INS	DESCRIPTION	SPEC
A1010	Telecommunication Outlet	1	CC	Telecommunication outlet location.	27 31 00
A1012	Telephone, Wall Mounted, 1 Line	1	CC	Telephone, wall mounted, 1 line.	27 31 00
A1066	Mirror, Float Glass, With SS Frame	1	CC	A high quality 1/4" polished float glass mirror 36X18, framed in a one-piece, bright polished, stainless steel channel frame with 90° mitered corners. All edges of the mirror are protected by absorbing filler strips. Mirror has a galvanized steel back with integral horizontal hanging brackets and wall hanger for concealed mounting. For mounting above single wall mounted lavatories located in toilet areas, Doctors examination offices, etc. May also be used above double lavatories, either wall or countertop mounted, found in restroom areas.	10 28 00
A5075	Dispenser, Soap, Disposable	1	VV	Disposable soap dispenser. One-handed dispensing operation. Designed to accommodate disposable soap cartridge and valve.	10 28 00
A5080	Dispenser, Paper Towel, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, single-fold, paper towel dispenser. Dispenser features: tumbler lock; front hinged at bottom; and refill indicator slot. Minimum capacity 400 single-fold paper towels. For general purpose use throughout the facility.	10 28 00
A5106	Waste Disposal Unit, Sharps w/Glove Dispenser	1	VV	The unit is designed for the disposal of sharps and complies with OSHA guidelines for the handling of sharps. It shall house a 5 quart container and be capable of being mounted on a wall. It shall have a glove dispenser attached. The unit shall be secured by a locked enclosure.	
A5145	Hook, Garment, Double, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, double garment hook. Equipped with a concealed mounting bracket that is secured to a concealed wall plate. For general purpose use throughout the facility to hang various items of apparel.	10 28 00

F0205	Chair, Side With Arms	1	VV	Upholstered side chair, 32" high X 21" wide X 23" deep with arms, padded seats and padded backs. Seat height is a minimum of 17". Available with or without sled base.	
F0340	Stool, Self Adjusting	1	VV	Self adjusting stool. Consists of a foam padded upholstered seat with attached foot rest for added comfort. Mounted on swivel casters. Designed for doctor's use during examinations.	
F0355	Footstool, Straight	1	VV	Step stool. Used to assist patients getting on and off exam or surgical tables. Fitted with electrically conductive rubber tips.	
F3200	Clock, Battery, 12" Diameter	1	VV	Clock, 12" diameter. Round surface, easy to read numbers with sweep second hand. Wall mounted unit for use when impractical to install a fully synchronized clock system. Battery operated, (batteries not included).	
E0948	Cart, General Storage, Mobile, 42"H x 32"W x 22"D	1	VV	THIS TYPICAL INCLUDES: 1 Cart Body, Style-A Narrow, w/Raised Edge Top 1 Accessory Rail, Side 2 Drawers, 3" H (76mm) 4 Drawers, 6" H (152mm) Drawer Organizer Bins	
F2000	Basket, Wastepaper, Round, Metal	1	VV	Round wastepaper basket, approximately 18" high X 16" diameter. This metal unit is used to collect and temporarily store small quantities of paper refuse in patient rooms, administrative areas and nursing stations.	
F3200	Clock, Battery, 12" Diameter	1	VV	Clock, 12" diameter. Round surface, easy to read numbers with sweep second hand. Wall mounted unit for use when impractical to install a fully synchronized clock system. Battery operated, (batteries not included).	
M3070	Hamper, Linen, Mobile, w/Lid	1	VV	Mobile linen hamper with hand or foot operated lid. Made of heavy tubular stainless steel with heavy gauge welded steel platform. Holds 25" hamper bags. Mounted on ball bearing casters. For linen transport in hospitals and clinics.	

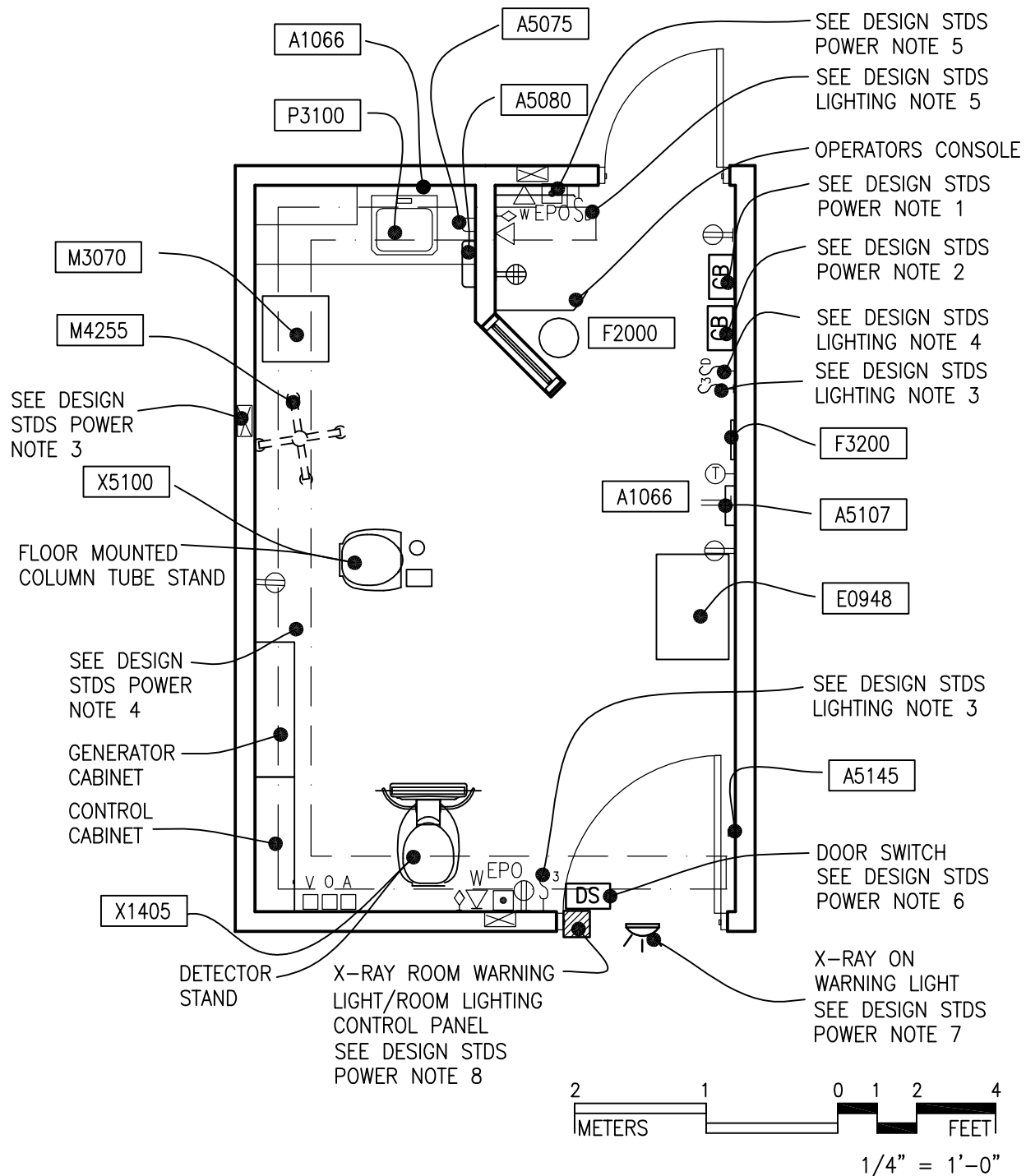
M4255	Stand, IV, Adjustable	1	VV	Adjustable IV stand with 4-hook arrangement. Stand has stainless steel construction with heavy weight base. It adjusts from 66 inches to 100 inches and is mounted on conductive rubber, ball bearing, swivel casters. Stand is used for administering intravenous solutions.	
P3100	Lavatory, Vitreous China, Slab Type	1	CC	Wall mounted, slab type, vitreous china, lavatory (approximate bowl size 7"x15"x10") with: faucet holes on 4" centers; gooseneck spout; wrist blade handles; and grid strainer. It shall be suitable for use in clinics, offices, washrooms or patient care area.	22 40 00
X1405	Stand, Bucky, Vertical, Tilt, Automatic	1	CF? This is VC on Old VA codes	Vertical and tilting bucky stand. This unit is mounted to the floor and wall to provide a vibration-free mounting platform for the universal bucky. The grid line free radiographs are produced at exposure times as short as two milliseconds. Characteristics and components include aluminum interspaced grid with a 36 inch (914 mm) to 40 inch (1016 mm) focal range. The unit's cassette size sensing tray accommodates all cassette sizes between 5 and 17 inches. The unit tilts at angles of +90/-20 degrees from the vertical position. The unit is used in X-ray facilities for processing radiography images.	
X3150	Rack, Apron/Gloves, Wall Mounted	1	CC	Apron and gloves rack. This is a wall unit which holds aprons and gloves. The body is heavy gauge steel finish in gray or green baked enamel, glove and apron holding arms are aluminum. The unit's convenient on wall storage will prolong the useful life of your protection aprons by helping prevent damage to internal components.	
X5900 (need new digital number)	Radiographic Unit, 80 kW, NonTilt Table	1	CF? This is VC on Old VA codes	This system is specifically designed to perform radiographic examinations in the Radiology Department. This units characteristics and components include, 80kW micro-processor controlled X-ray generator, a non-tilting table with a floating table top and an adjustable bucky, a ceiling suspended 0.6/1.2 mm tube unit and vertical bucky stand.	

Chest Room (XDCS1)

120 NSF

Floor Plan

18.6 NSM



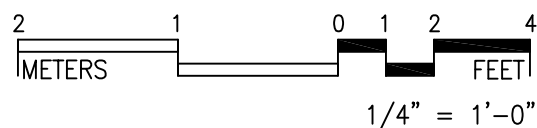
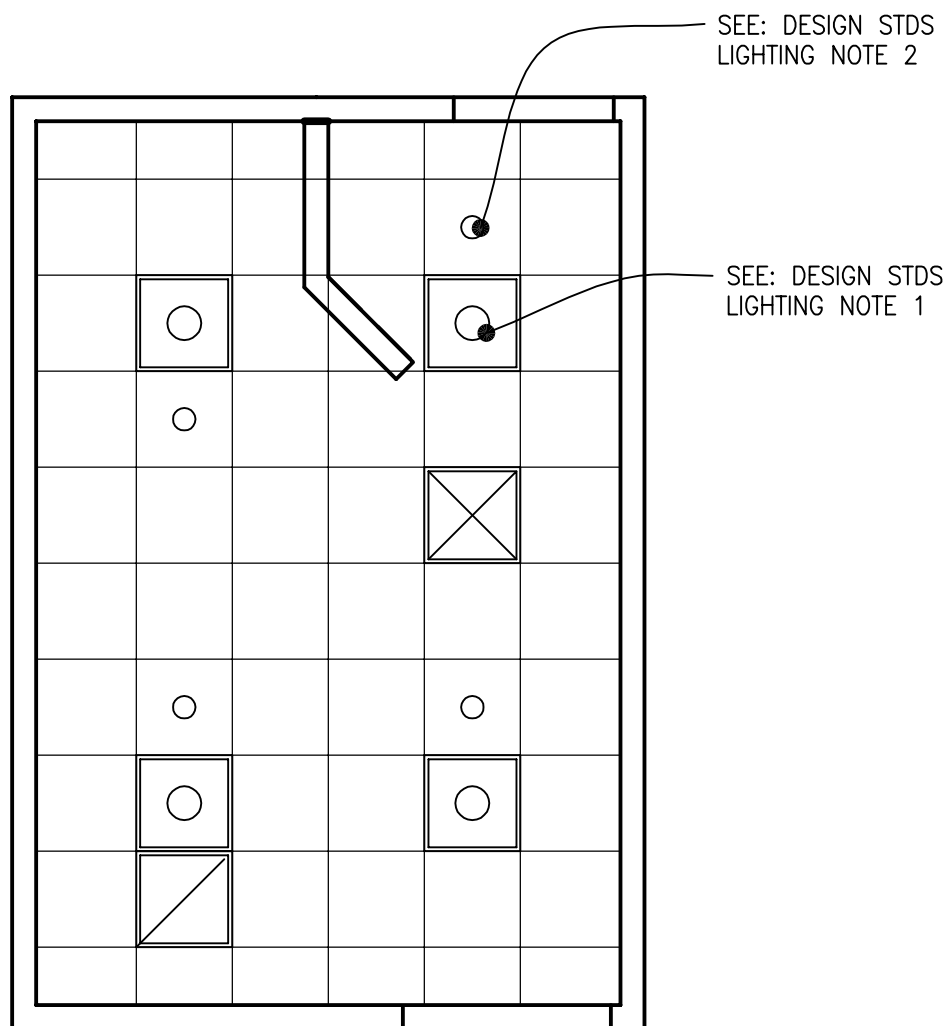
Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.

Chest Room (XDCS1)

120 NSF

Reflected Ceiling Plan

18.6 NSM



The locations and quantities of the air outlets and inlets are tentative and may not represent the optimum design solution(s) envisioned by the designer, who shall study the layout, calculate air volumes, and may alter the arrangement shown in the reflected ceiling plan, as required, to produce a project-specific air distribution system design.

Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.



CHEST ROOM (XDCS1): Design Standards

ARCHITECTURAL

Ceiling:	Acoustical Tile Ceiling
Ceiling Height:	Coordinate with Equipment Manufacturer
Wall Finish:	Paint
Wainscot:	--
Base:	Vinyl
Floor Finish:	Vinyl Composition Tile
Sound Protection:	--

Notes:

1. Provide a 4'-0" wide shielded door into the Dedicate Chest Room
2. Provide a shielded viewing window from Control Are to the Dedicated Chest Room.

LIGHTING

General: Fluorescent lights will provide higher illumination level up to 50 FC during patient transfer on and from the table, equipment setting, room cleaning, and equipment maintenance.

Special: Incandescent luminaires controlled by dimmer will provide lower illumination levels down to 5 FC during X-ray tube aiming and scanning. Warmer light color will enhance skin appearance and increase patient comfort.

Luminaires shall be located to avoid conflict with radiographic equipment ceiling tracks.

Notes:

1. 2'x2' fluorescent recessed luminaire, acrylic prismatic lens, with (2) FB031T8-U lamps, 4100 K, CRI=85 (minimum)
2. 8-inch diameter., recessed incandescent downlight, with recessed Fresnel lens, and 150W/A21 inc. horizontally mounted lamp.
3. Fluorescent lighting controlled by 3-way switches located at entrance door and in control area

4. Incandescent down lighting in X-ray room controlled by dimmer located in X-ray room.
5. Incandescent down lighting in control area controlled by separate dimmer located in control area.

POWER

The electrical power as shown is to be used as a guide only. Equipment locations, dimensions and wiring requirements should be per the x-ray system suppliers' equipment drawings. Electrical trades should provide necessary conduits, openings, bushings, nipples, flexible conduits, surface, recessed, wall mounted and floor raceways, etc., as required at the various junction boxes, duct and conduit terminations to allow proper connections of the x-ray equipment and related accessories

Emergency:

Emergency power for x-ray equipment, controls, and selected receptacles as determined by the Hospital.

Notes:

1. 480V, 3P-150A circuit breaker, with adjustable trip, shunt trip, flush mounted. . Run empty 50 mm (2"C) from circuit breaker to x-ray duct above finished ceiling.
2. 250V, 2P-30A circuit breaker for film processor, flush mounted.
3. 250 mm x 140 mm (10" W x 5-1/2" D) flush vertical wall duct with 300 mm (12") wide screw-on cover. Connect to x-ray duct above finished ceiling and terminate at finished floor.
4. 250 mm x 140 mm (10" W x 5-1/2" D) x-ray duct above finished ceiling with 250 mm (10") wide screw-on cover. Connect to vertical wall duct.
5. Emergency Power Off pushbutton station. Refer to specific radiology equipment requirements for EPO. Connect to shunt trip at main disconnect.
6. Door switch with NO/NC contacts. Connect to x-ray machine control

- circuit. X-ray machine should shut-off upon opening of the entrance door.
7. Warning light with wording "X-RAY ON DO NOT ENTER". Provide power, interface with x-ray machine via interface relay
 8. X-ray warning light interface relay with low voltage power supply to match x-ray equipment requirements

Laboratory Vacuum:	--
Sanitary Drain:	Yes
Reagent grade Water:	--
Medical Air:	Yes
Medical Vacuum:	Yes
Oxygen:	Yes

Notes:

COMMUNICATION/SPECIAL SYSTEMS

ADP:	Yes
Data:	Yes
Telephone:	Yes
Intercom:	--
Nurse Call:	--
Public Address:	--
Radio/Entertainment:	--
MATV:	--
CCTV:	--
MID:	--
Security/Duress:	--
VTEL:	--
VA Satellite TV:	--
Notes:	
PACS: two 4-port telecommunication outlets per PACS station	

HEATING, VENTILATING AND AIR CONDITIONING

Inside Design Conditions:	70°F - 75°F (21°C - 24°C)
	30% to 60% Relative humidity
Minimum Air Changes per hour:	6
	- Supply Air
100% Exhaust:	No
100% Outside air	No
Room Air Balance:	Positive
Dedicated Exhaust System:	No
Occupancy:	2 people
AC Load-Equipment:	1,000 Btuh (300W)
AC Load-Lighting:	1.1 W/SF (127 W/M ²)

Notes:

1. Verify cooling loads and other specific requirements with the equipment manufacturer on a specific project.

PLUMBING AND MEDICAL GASES

Cold Water:	Yes
Hot Water:	Yes
Laboratory Air:	--

CHEST ROOM (XDCS1): Equipment Guide List

JSN	NAME	QTY	ACQ / INS	DESCRIPTION	SPEC
A1010	Telecommunication Outlet	1	CC	Telecommunication outlet location.	27 31 00
A1012	Telephone, Wall Mounted, 1 Line	1	CC	Telephone, wall mounted, 1 line.	27 31 00
A1066	Mirror, Float Glass, With SS Frame	1	CC	A high quality 1/4" polished float glass mirror 36X18, framed in a one-piece, bright polished, stainless steel channel frame with 90° mitered corners. All edges of the mirror are protected by absorbing filler strips. Mirror has a galvanized steel back with integral horizontal hanging brackets and wall hanger for concealed mounting. For mounting above single wall mounted lavatories located in toilet areas, Doctors examination offices, etc. May also be used above double lavatories, either wall or countertop mounted, found in restroom areas.	10 28 00
A5075	Dispenser, Soap, Disposable	1	W	Disposable soap dispenser. One-handed dispensing operation. Designed to accommodate disposable soap cartridge and valve.	
A5080	Dispenser, Paper Towel, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, single-fold, paper towel dispenser. Dispenser features: tumbler lock; front hinged at bottom; and refill indicator slot. Minimum capacity 400 single-fold paper towels. For general purpose use throughout the facility.	10 28 00
A5107	Waste Disposal Unit, Sharps w/Glove Dispenser	1	W	The unit is designed for the disposal of sharps and complies with OSHA guidelines for the handling of sharps. It shall house a 5 quart container and be capable of being mounted on a wall. It shall have a glove dispenser attached. The unit shall be secured by a locked enclosure.	

A5145	Hook, Garment, Double, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, double garment hook. Equipped with a concealed mounting bracket that is secured to a concealed wall plate. For general purpose use throughout the facility to hang various items of apparel.	10 28 00
F0205	Chair, Side With Arms	1	W	Upholstered side chair, 32" high X 21" wide X 23" deep with arms, padded seats and padded backs. Seat height is a minimum of 17". Available with or without sled base.	
F0340	Stool, Self Adjusting	1	W	Self adjusting stool. Consists of a foam padded upholstered seat with attached foot rest for added comfort. Mounted on swivel casters. Designed for doctor's use during examinations.	
F0355	Footstool, Straight	1	W	Step stool. Used to assist patients getting on and off exam or surgical tables. Fitted with electrically conductive rubber tips.	
E0948	Cart, General Storage, Mobile, 42"H x 32"W x 22"D	1	W	THIS TYPICAL INCLUDES: 1 Cart Body, Style-A Narrow, w/Raised Edge Top 1 Accessory Rail, Side 2 Drawers, 3" H (76mm) 4 Drawers, 6" H (152mm) Drawer Organizer Bins	
F2000	Basket, Wastepaper, Round, Metal	1	W	Round wastepaper basket, approximately 18" high X 16" diameter. This metal unit is used to collect and temporarily store small quantities of paper refuse in patient rooms, administrative areas and nursing stations.	
F3200	Clock, Battery, 12" Diameter	1	W	Clock, 12" diameter. Round surface, easy to read numbers with sweep second hand. Wall mounted unit for use when impractical to install a fully synchronized clock system. Battery operated, (batteries not included).	
M3070	Hamper, Linen, Mobile, w/Lid	1	W	Mobile linen hamper with hand or foot operated lid. Made of heavy tubular stainless steel with heavy gauge welded steel platform. Holds 25" hamper bags. Mounted on ball bearing casters. For linen transport in hospitals and clinics.	

M4255	Stand, IV, Adjustable	1	W	Adjustable IV stand with 4-hook arrangement. Stand has stainless steel construction with heavy weight base. It adjusts from 66 inches to 100 inches and is mounted on conductive rubber, ball bearing, swivel casters. Stand is used for administering intravenous solutions.	
P3100	Lavatory, Vitreous China, Slab Type	1	CC	Wall mounted, slab type, vitreous china, lavatory (approximate bowl size 7"x15"x10") with: faucet holes on 4" centers; gooseneck spout; wrist blade handles; and grid strainer. It shall be suitable for use in clinics, offices, washrooms or patient care area.	22 40 00
X1405	Stand, Bucky, Vertical, Tilt, Automatic	1	CF?	Vertical and tilting bucky stand. This unit is mounted to the floor and wall to provide a vibration-free mounting platform for the universal bucky. The grid line free radiographs are produced at exposure times as short as two milliseconds. Characteristics and components include aluminum interspaced grid with a 36 inch (914 mm) to 40 inch (1016 mm) focal range. The unit's cassette size sensing tray accommodates all cassette sizes between 5 and 17 inches. The unit tilts at angles of +90/-20 degrees from the vertical position. The unit is used in X-ray facilities for processing radiography images.	
X3150	Rack, Apron/Gloves, Wall Mounted	1	CC	Apron and gloves rack. This is a wall unit which holds aprons and gloves. The body is heavy gauge steel finish in gray or green baked enamel, glove and apron holding arms are aluminum. The unit's convenient on wall storage will prolong the useful life of your protection aprons by helping prevent damage to internal components.	?

X5100	Radiographic Unit, 80 kW, Chest, Digital	1	CF?	Digital chest system designed solely for making x-ray exposures of the chest. Patients can be standing, seated or lying on their sides. Patient throughput is approximately 60 exposures per hour. The configuration of the system consists of a detector subsystem, image processing system, 80 kW high frequency x-ray generator and ceiling suspension or floor mounted column for the x-ray tube. The system shall be DICOM 3.0 compatible, for easy linkage to filmless image management systems and review stations.	
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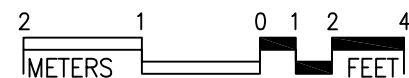
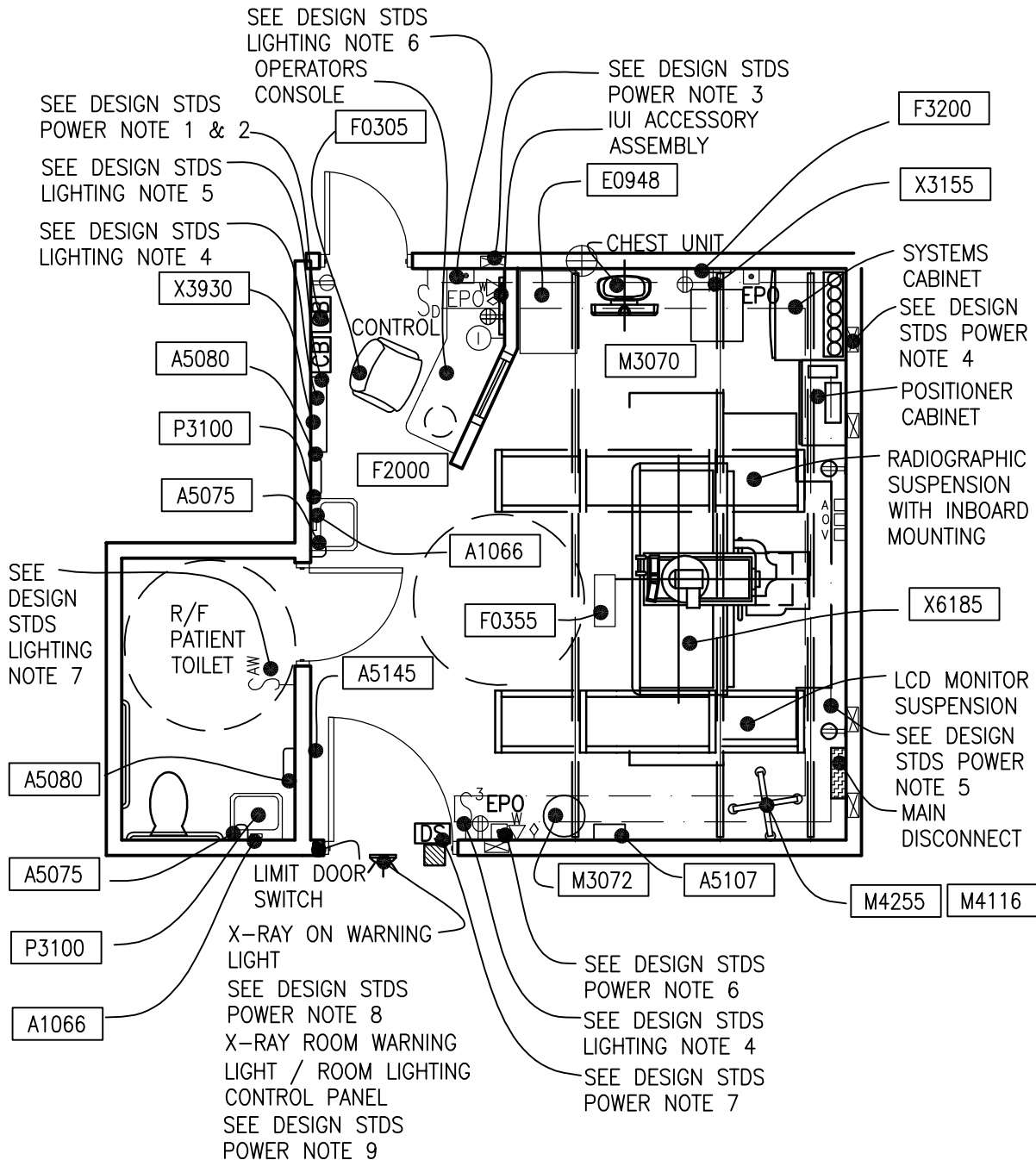


Radiographic/Fluoroscopic Room (XDRF1)

320 NSF

Floor Plan

29.8 NSM



3/16" = 1'-0"

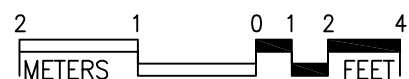
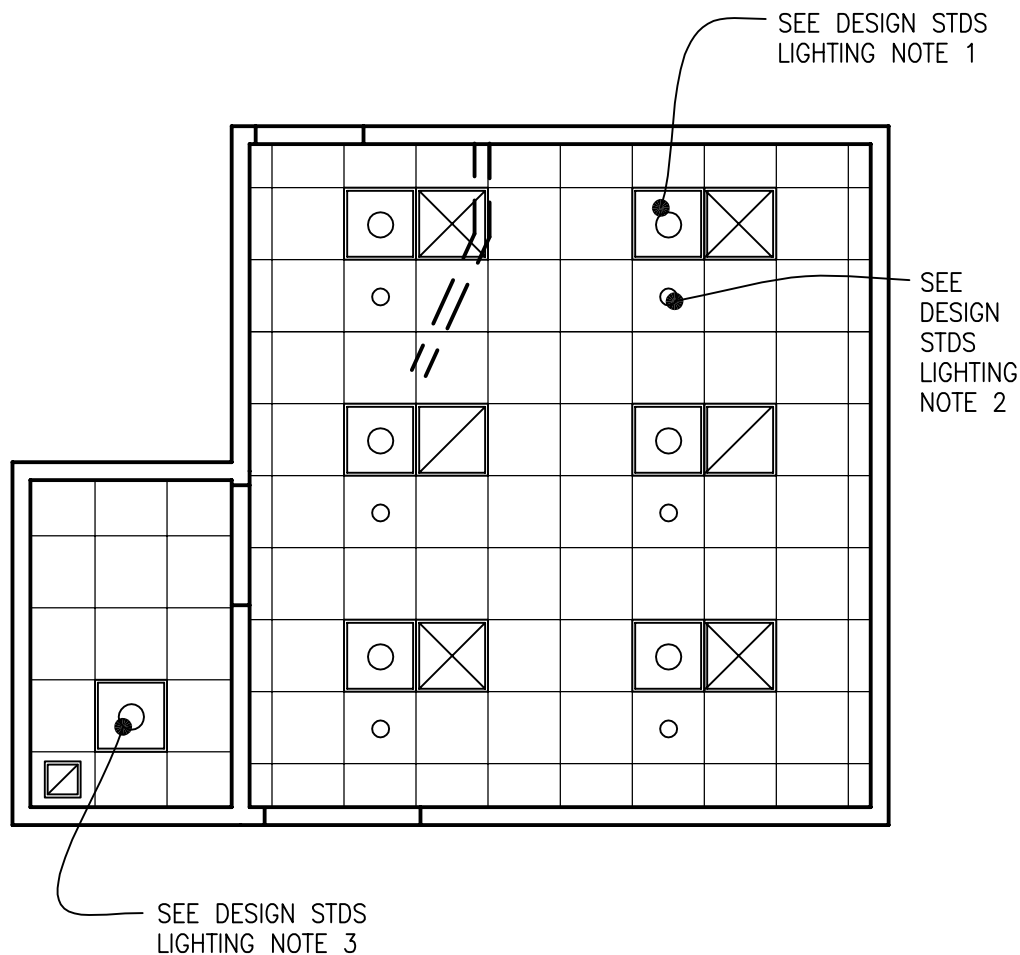
Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.

Radiographic/Fluoroscopic Room (XDRF1)

320 NSF

Reflected Ceiling Plan

29.8 NSM



$$\frac{3}{16}'' = 1'-0''$$

The locations and quantities of the air outlets and inlets are tentative and may not represent the optimum design solution(s) envisioned by the designer, who shall study the layout, calculate air volumes, and may alter the arrangement shown in the reflected ceiling plan, as required, to produce a project-specific air distribution system design.

Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.



RADIOGRAPHIC / FLUOROSCOPIC ROOM (XDRF1): Design Standards

ARCHITECTURAL

Ceiling:	Acoustical Tile Ceiling
Ceiling Height:	Coordinate with Equipment Manufacturer
Wall Finish:	Paint
Wainscot:	--
Base:	Resilient Base / Cove
Floor Finish:	Sheet Vinyl
Sound Protection:	--

Notes:

1. Provide a 4'-0" wide shielded door into the Radiographic / Fluoroscopic Room.
2. Provide a shielded viewing window from the Control Area to the Radiographic / Fluoroscopic Room.

LIGHTING

Fluoroscopic Room:

General: Fluorescent lights will provide higher illumination level up to 100 FC during patient transfer on and from the table, equipment setting, contrast agent injection, etc, and room cleaning and equipment maintenance. The general illumination is switched off during scanning procedure.

Special: Incandescent luminaires controlled by dimmer will provide lower illumination levels down to 2 FC during scanning for image viewing on monitor.

Luminaires shall be located to avoid conflict with radiographic equipment ceiling rails.

R/F Toilet Room:

Fluorescent light will provide illumination up to 30 FC.

Notes:

1. 2'x2' fluorescent recessed luminaire, acrylic prismatic lens, with (3) FB031T8-U lamps, 4100 K, CRI=85 (minimum)
2. 8-inch diameter recessed incandescent downlight, with recessed Fresnel lens, and

150W/A21 inc. horizontally mounted lamp. --

3. 2'x2' Fluorescent recessed luminaire, acrylic prismatic lens, with (3) F14T5 lamps, 3500 K, CRI=82 (minimum)
4. 3-way switch for fluorescent lights control, located at entrance door and in control area
5. Dimmer switch for X-ray room down lights control
6. Dimmer switch for control area down light
7. Occupancy sensor for automatic light control; switchbox type, wall mounted

POWER

The electrical power as shown is to be used as a guide only. Equipment locations, dimensions and wiring requirements should be per the x-ray system suppliers' equipment drawings. Electrical trades should provide necessary conduits, openings, bushings, nipples, flexible conduits, surface, recessed, wall mounted and floor raceways, etc., as required at the various junction boxes, duct and conduit terminations to allow proper connections of the x-ray equipment and related accessories.

Emergency:

Emergency power for x-ray equipment, controls, and selected receptacles as determined by the Hospital

Notes:

1. 480V, 3P-150A circuit breaker, with adjustable trip, shunt trip, flush mounted. Run empty 50 mm (2" C) from circuit breaker to x-ray duct above finished ceiling.
2. 250V, 2P-30A circuit breaker for film processor, flush mounted.
3. 250 mm x 140 mm (10" W x 5-1/2" D) flush vertical wall duct with 300 mm (12") wide screw-on cover. Connect to floor duct and to x-ray duct above finished ceiling.

4. 250 mm x 140 mm (10" W x 5-1/2" D) flush vertical wall duct with 300 mm (12") wide screw-on cover. Connect to x-ray duct above finished ceiling and terminate at finished floor.
5. 250 mm x 140 mm (10" W x 5-1/2" D) x-ray duct above finished ceiling with 250 mm (10") wide screw-on cover. Connect to vertical wall duct.
6. Emergency Power Off pushbutton station. Refer to specific radiology equipment requirements for EPO. Connect to shunt trip at main disconnect.
7. Door switch with NO/NC contacts. Connect to x-ray machine control circuit. X-ray machine should shut-off upon opening of the entrance door.
8. Warning light with wording "X-RAY ON DO NOT ENTER". Provide power, interface with x-ray machine via interface relay.
9. X-ray warning light interface relay with low voltage power supply to match x-ray equipment requirements

(21 °C - 24 °)
 30% to 60% Relative humidity
 Minimum Air Changes per hour: 6
 - Supply Air
 100% Exhaust: Yes, Radiographic Room and Toilet
 100% Outside air No-
 Room Air Balance: Negative for Radiographic Room and Toilet
 Dedicated Exhaust System: No
 Occupancy: 4 people
 AC Load-Equipment: 13,500 Btuh (4000 W)
 AC Load-Lighting: 1.5 W/SF (16 W/M²)

Notes:

1. Verify cooling loads and other requirements with the equipment manufacturer on a specific project.

PLUMBING AND MEDICAL GASES

Cold Water: Yes
 Hot Water: Yes
 Laboratory Air: --
 Laboratory Vacuum: --
 Sanitary Drain: Yes
 Reagent grade Water: --
 Medical Air: Yes
 Medical Vacuum: Yes
 Oxygen: Yes

Notes:

COMMUNICATION/SPECIAL SYSTEMS

ADP: Yes
 Data: Yes
 Telephone: Yes
 Intercom: Yes
 Nurse Call: Note 1
 Public Address: --
 Radio/Entertainment: --
 MATV: --
 CCTV: --
 MID: --
 Security/Duress: --
 VTEL: --
 VA Satellite TV: --

Notes:

1. Nurse call in toilet room to annunciate in scanning room and at reception desk.
2. PACS:two 4-port telecommunication outlets per PACS station

HEATING, VENTILATING AND AIR CONDITIONING

Inside Design Conditions: 70 °F - 75 °F

RADIOGRAPHIC / FLUOROSCOPIC ROOM (XDRF1): Equipment Guide List

JSN	NAME	QTY	ACQ / INS	DESCRIPTION	SPEC
A1010	Telecommunication Outlet	1	CC	Telecommunication outlet location.	27 31 00
A1012	Telephone, Wall Mounted, 1 Line	1	CC	Telephone, wall mounted, 1 line.	27 31 00
A1066	Mirror, Float Glass, With SS Frame	1	CC	A high quality 1/4" polished float glass mirror 36X18, framed in a one-piece, bright polished, stainless steel channel frame with 90° mitered corners. All edges of the mirror are protected by absorbing filler strips. Mirror has a galvanized steel back with integral horizontal hanging brackets and wall hanger for concealed mounting. For mounting above single wall mounted lavatories located in toilet areas, Doctors examination offices, etc. May also be used above double lavatories, either wall or countertop mounted, found in restroom areas.	10 28 00
A5075	Dispenser, Soap, Disposable	1	W	Disposable soap dispenser. One-handed dispensing operation. Designed to accommodate disposable soap cartridge and valve.	
A5080	Dispenser, Paper Towel, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, single-fold, paper towel dispenser. Dispenser features: tumbler lock; front hinged at bottom; and refill indicator slot. Minimum capacity 400 single-fold paper towels. For general purpose use throughout the facility.	10 28 00
A5107	Waste Disposal Unit, Sharps w/Glove Dispenser	1	W	The unit is designed for the disposal of sharps and complies with OSHA guidelines for the handling of sharps. It shall house a 5 quart container and be capable of being mounted on a wall. It shall have a glove dispenser attached. The unit shall be secured by a locked enclosure.	
A5145	Hook, Garment, Double, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, double garment hook. Equipped with a concealed mounting bracket that is secured to a concealed wall plate. For general purpose use throughout the facility to hang various items of apparel.	10 28 00

E0948	Cart, General Storage, Mobile, 42"H x 32"W x 22"D	1	W	THIS TYPICAL INCLUDES: 1 Cart Body, Style-A Narrow, w/Raised Edge Top 1 Accessory Rail, Side 2 Drawers, 3" H (76mm) 4 Drawers, 6" H (152mm) Drawer Organizer Bins	
F0205	Chair, Side With Arms	1	W	Upholstered side chair, 32" high X 21" wide X 23" deep with arms, padded seats and padded backs. Seat height is a minimum of 17". Available with or without sled base.	
F0340	Stool, Self Adjusting	1	W	Self adjusting stool. Consists of a foam padded upholstered seat with attached foot rest for added comfort. Mounted on swivel casters. Designed for doctor's use during examinations.	
F0355	Footstool, Straight	1	W	Step stool. Used to assist patients getting on and off exam or surgical tables. Fitted with electrically conductive rubber tips.	
F2000	Basket, Wastepaper, Round, Metal	1	W	Round wastepaper basket, approximately 18" high X 16" diameter. This metal unit is used to collect and temporarily store small quantities of paper refuse in patient rooms, administrative areas and nursing stations.	
F3200	Clock, Battery, 12" Diameter	1	W	Clock, 12" diameter. Round surface, easy to read numbers with sweep second hand. Wall mounted unit for use when impractical to install a fully synchronized clock system. Battery operated, (batteries not included).	
M3070	Hamper, Linen, Mobile, w/Lid	1	W	Mobile linen hamper with hand or foot operated lid. Made of heavy tubular stainless steel with heavy gauge welded steel platform. Holds 25" hamper bags. Mounted on ball bearing casters. For linen transport in hospitals and clinics.	
M3072	Frame, Infectious Waste Bag w/Lid	C	1	Frame for an infectious waste collection bag. Made of heavy tubular stainless steel with heavy gauge welded steel platform. Adjust to hold 18" or 25" trash bags. Mounted on ball bearing casters and includes permanently mounted hinged lid. Provides means of bagging infectious waste at point of waste generation.	
M4116	Monitor, Vital Signs	C	1	Electronic sphygmomanometer. LCD displays non-invasive blood pressure, pulse rate and temperature. Used in hospitals and clinics. Includes an optional mobile stand.	

M4255	Stand, IV, Adjustable	C	1	Adjustable IV stand with 4-hook arrangement. Stand has stainless steel construction with heavy weight base. It adjusts from 66 inches to 100 inches and is mounted on conductive rubber, ball bearing, swivel casters. Stand is used for administering intravenous solutions.	
P3100	Lavatory, Vitreous China, Slab Type	A	1	Wall mounted, slab type, vitreous china, lavatory (approximate bowl size 7"x15"x10") with: faucet holes on 4" centers; gooseneck spout; wrist blade handles; and grid strainer. It shall be suitable for use in clinics, offices, washrooms or patient care area.	
X1400	Holder, Cassette, Vertical, With Bucky	F	1	Vertical cassette holder. Includes counterbalanced cabinet holder, vertical multi-sided capability with three field automatic exposure control and automatic collimation control. The unit is available in either right or left hand loading. Sturdy box girder construction, with nylon bearings and dual lock system. The unit is used in X-ray departments for holding film cassettes during radiographic procedures. Specify right or left hand cassette loading when ordering.	
X2605	Camera, Identification, Film	C	1	Film identification camera for use with cassettes like the Kodak C1. Cannot be used for C2 (Windowless) cassettes. This unit works in normal room lighting, transferring patient I.D. data from a card to X-ray film. The I.D. appears as light type on a dark background; exposure time is approximately one second.	
X3155	Rack, Apron/Gloves, Mobile	C	1	Apron and gloves rack. This is a mobile unit which holds aprons and gloves. The body is heavy gauge steel finish in gray or green baked enamel, glove and apron holding arms are aluminum.	
X3930	Illuminator, Film, Single, Wall Mounted	C	1	Single film illuminator approximately 20"H x 17"W x 5"D. This is a single panel wall mounted unit. Characteristics and components include, two 15 watt fluorescent tubes; gravity grip film holder, constructed of corrosion resistant galvanized steel with stainless steel trim, and a clean uncluttered appearance. This unit is used to view X-ray film in hospitals and doctors offices.	

X6185	Rad/Fluoro Unit, Remote, 80 kW, 90/90 Table	F	1	<p>This system is specifically designed to perform radiographic/fluoroscopic examinations in the Radiology Department. On-line digital image processing will provide instant availability of images for review via infrared remote control. This units characteristics and components include, 80 kW micro-processor controlled X-ray generator, remote-controlled 90/90 table with 15" multi-field Image Intensifier and integrated tube support. The Digital Spot Imaging consists of a computer, keyboard with acquisition, viewing monitor and a slave monitor. The system shall be DICOM 3.0 compatible, for easy linkage to filmless image management systems and review stations. It is recommended that the TV monitors be ceiling suspended.</p>	
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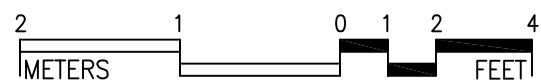
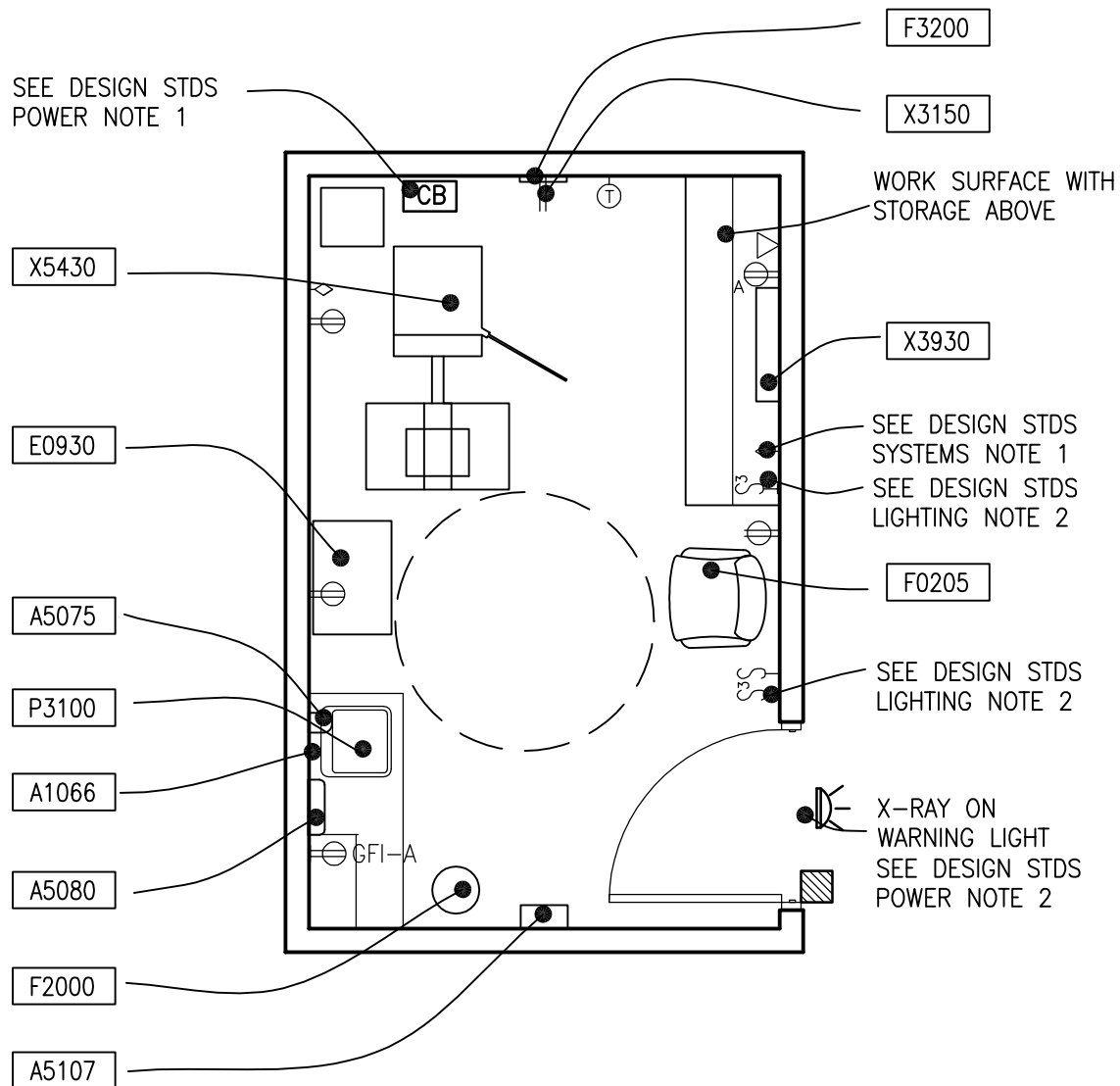


Mammography Room (XDM01)

160 NSF

Floor Plan

14.9 NSM



1/4" = 1'-0"

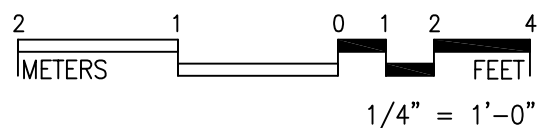
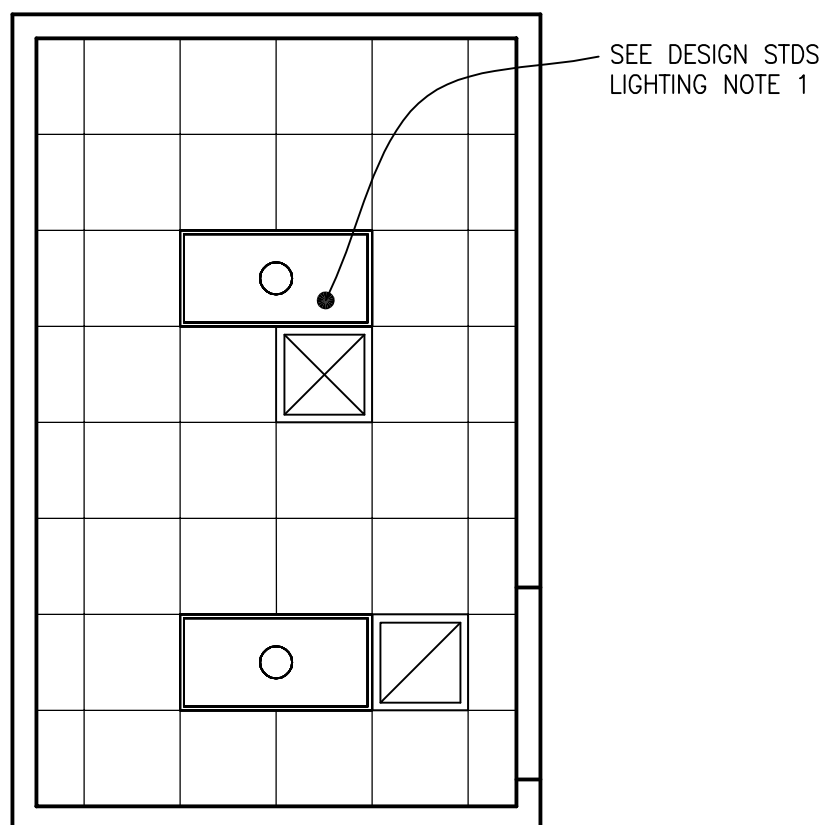
Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.

Mammography Room (XDM01)

160 NSF

Reflected Ceiling Plan

14.9 NSM



The locations and quantities of the air outlets and inlets are tentative and may not represent the optimum design solution(s) envisioned by the designer, who shall study the layout, calculate air volumes, and may alter the arrangement shown in the reflected ceiling plan, as required, to produce a project-specific air distribution system design.

Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.



MAMMOGRAPHY ROOM (XDM01): Design Standards

ARCHITECTURAL

Ceiling:	Acoustical Tile Ceiling
Ceiling Height:	Coordinate with Equipment Manufacturer
Wall Finish:	Paint
Wainscot:	--
Base:	Vinyl
Floor Finish:	Vinyl
Sound Protection:	--

Notes:

1. Provide a 4'-0" wide door into the Mammography Room.

LIGHTING

General: Fluorescent lights will provide illumination level up to 40 FC during patient transfer, equipment setting, room cleaning, and equipment maintenance.

Special: Luminaires shall be dual switched for multi-level illumination. Lower illumination levels will enhance skin appearance and patient comfort.

Notes:

1. 2'x4' fluorescent recessed luminaire, acrylic prismatic lens, with (3) F32T8 lamps, 4100 K, CRI=85 (minimum)
2. Lighting controlled by 3-way switches located at entrance door and in control area

POWER

The electrical power as shown is to be used as a guide only. Equipment locations, dimensions and wiring requirements should be per the x-ray system suppliers' equipment drawings. Electrical trades should provide necessary conduits, openings, bushings, nipples, flexible conduits, recessed, wall mounted raceways, etc., as required at the various junction boxes, and conduit terminations to allow proper connections of the mammography equipment and related accessories.

Emergency:

--

Notes: --

1. 250V, 2P-30A circuit breaker flush mounted for mammography unit.
2. Warning light with wording "X-RAY ON DO NOT ENTER." Provide power, interface with X-Ray machine via interface relay.

COMMUNICATION/SPECIAL SYSTEMS

ADP:	Yes
Data:	Yes
Telephone:	Yes
Intercom:	--
Nurse Call:	--
Public Address:	--
Radio/Entertainment:	--
MATV:	--
CCTV:	--
MID:	--
Security/Duress:	--
VTEL:	--
VA Satellite TV:	--

Notes:

1. PACS: two 4-port telecommunication outlets per PACS station

HEATING, VENTILATING AND AIR CONDITIONING

Inside Design Conditions:	70°F - 75°F (21°C - 24°C)
	30% to 60% Relative humidity
Minimum Air Changes per hour:	6
	- Supply Air
100% Exhaust:	No
100% Outside air	No
Room Air Balance:	Positive
Dedicated Exhaust System:	No
Occupancy:	3 people
AC Load-Equipment:	3,000 Btuh – 6,500 Btuh (900W- 1,800 W)
AC Load-Lighting:	1.2 W/SF (13 W/M ²)

Notes:

1. Verify cooling loads and other specific requirements with the equipment manufacturer on a specific project

PLUMBING AND MEDICAL GASES

Cold Water:	Yes
Hot Water:	Yes
Laboratory Air:	--
Laboratory Vacuum:	--
Sanitary Drain:	Yes
Reagent grade Water:	--
Medical Air:	--
Medical Vacuum:	--
Oxygen:	--

Notes:

MAMMOGRAPHY ROOM (XDM01): Equipment Guide List

JSN	NAME	QTY	ACQ / INS	DESCRIPTION	SPEC
A1010	Telecommunication Outlet	1	CC	Telecommunication outlet location.	27 31 00
A1012	Telephone, Wall Mounted, 1 Line	1	CC	Telephone, wall mounted, 1 line.	27 31 00
A1066	Mirror, Float Glass, With SS Frame	1	CC	A high quality 1/4" polished float glass mirror 36X18, framed in a one-piece, bright polished, stainless steel channel frame with 90° mitered corners. All edges of the mirror are protected by absorbing filler strips. Mirror has a galvanized steel back with integral horizontal hanging brackets and wall hanger for concealed mounting. For mounting above single wall mounted lavatories located in toilet areas, Doctors examination offices, etc. May also be used above double lavatories, either wall or countertop mounted, found in restroom areas.	10 28 00
A5075	Dispenser, Soap, Disposable	1	W	Disposable soap dispenser. One-handed dispensing operation. Designed to accommodate disposable soap cartridge and valve.	
A5080	Dispenser, Paper Towel, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, single-fold, paper towel dispenser. Dispenser features: tumbler lock; front hinged at bottom; and refill indicator slot. Minimum capacity 400 single-fold paper towels. For general purpose use throughout the facility.	10 28 00
A5107	Waste Disposal Unit, Sharps w/Glove Dispenser	1	W	The unit is designed for the disposal of sharps and complies with OSHA guidelines for the handling of sharps. It shall house a 5 quart container and be capable of being mounted on a wall. It shall have a glove dispenser attached. The unit shall be secured by a locked enclosure.	
A5145	Hook, Garment, Double, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, double garment hook. Equipped with a concealed mounting bracket that is secured to a concealed wall plate. For general purpose use throughout the facility to hang various items of apparel.	10 28 00

A5180	Track, Cubicle, Surface Mounted, With Curtain	1	CC	Surface mounted cubicle track, with curtain. Track constructed of thick extruded aluminum. Equipped with self lubricating carriers, beaded drop chain hooks, and flame resistant curtain. To include removable end caps. Designed to be suspended around patient areas where privacy is needed. Price listed is per foot of the track, curtains to be priced per quote.	10 21 16
E0930	Locker, Supply, 6 Drawers, Mobile, 29"W x 20"D	1	W	THIS TYPICAL INCLUDES: 1 Mobile Supply Locker 2 Tray/Shelf 3 Drawers, 3"H (76mm) 3 Drawers, 6"H (152mm) Drawer Organizer Bins	
F2000	Basket, Wastepaper, Round, Metal	1	VV	Round wastepaper basket, approximately 18" high X 16" diameter. This metal unit is used to collect and temporarily store small quantities of paper refuse in patient rooms, administrative areas and nursing stations.	
F0205	Chair, Side With Arms	1	W	Upholstered side chair, 32" high X 21" wide X 23" deep with arms, padded seats and padded backs. Seat height is a minimum of 17". Available with or without sled base.	
F3200	Clock, Battery, 12" Diameter	1	VV	Clock, 12" diameter. Round surface, easy to read numbers with sweep second hand. Wall mounted unit for use when impractical to install a fully synchronized clock system. Battery operated, (batteries not included).	
P3100	Lavatory, Vitreous China, Slab Type	1	CC	Wall mounted, slab type, vitreous china, lavatory (approximate bowl size 7"x15"x10") with: faucet holes on 4" centers; gooseneck spout; wrist blade handles; and grid strainer. It shall be suitable for use in clinics, offices, washrooms or patient care area.	22 40 00
X3150	Rack, Apron/Gloves, Wall Mounted	1	CC	Apron and gloves rack. This is a wall mounted unit which holds aprons and gloves. The body is heavy gauge steel finish in gray or green baked enamel, glove and apron holding arms are aluminum.	

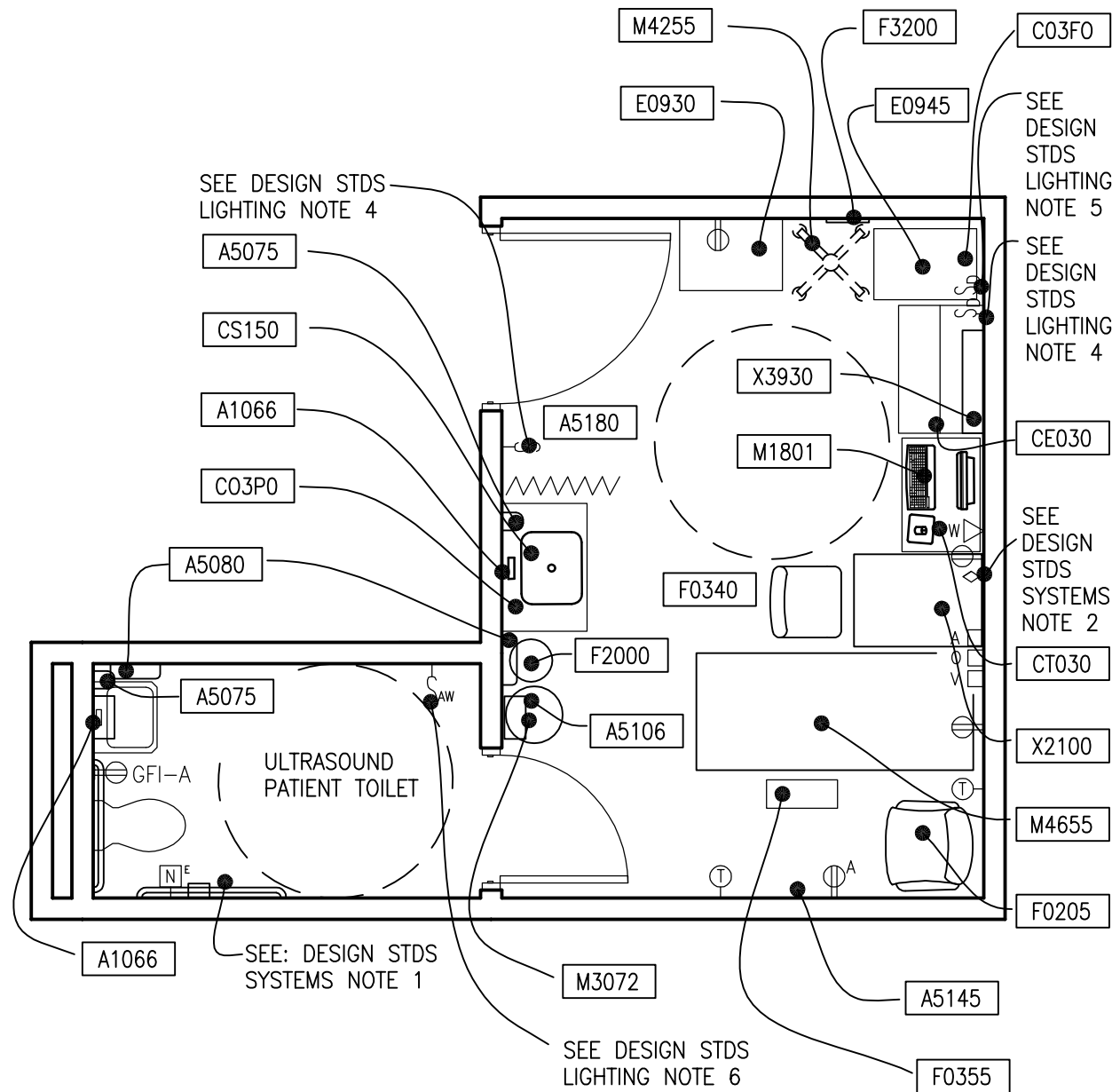
X5430 (does this need a new JSN if the equipment is digital?)	Radiographic Unit, Mammographic	1	CF?	This system is specifically designed, both electronically and mechanically, to meet the recommended American College of Radiology (ACR) "Specifications for New Mammography Equipment". The system is a computer controlled, menu-driven unit for exclusive use in mammography examination procedures. The examination can be performed on standing, seated or recumbent patients. Shall have stereotactic biopsy capability if this option is selected.	
X3930	Illuminator, Film, Double, Wall Mounted	1	W	X-ray film illuminator approximately 20' H x 29' W x 6" D. This is a double, wall mounted type unit with a continuous viewing surface. The tension film grips are adjustable top and bottom with standard grip strip. The unit's balanced-light viewing is assured by the 32W circular fluorescent lamp. It provides 500 feet candles of cool operation across the entire 14" X 17" viewing surface. It is available with or without film-activated switch. The unit can be used in hospitals, examining rooms, satellite office or lab.	

Ultrasound Room (XDUS1)

180 NSF

Floor Plan

16.8 NSM



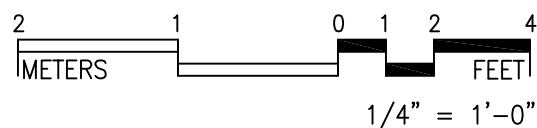
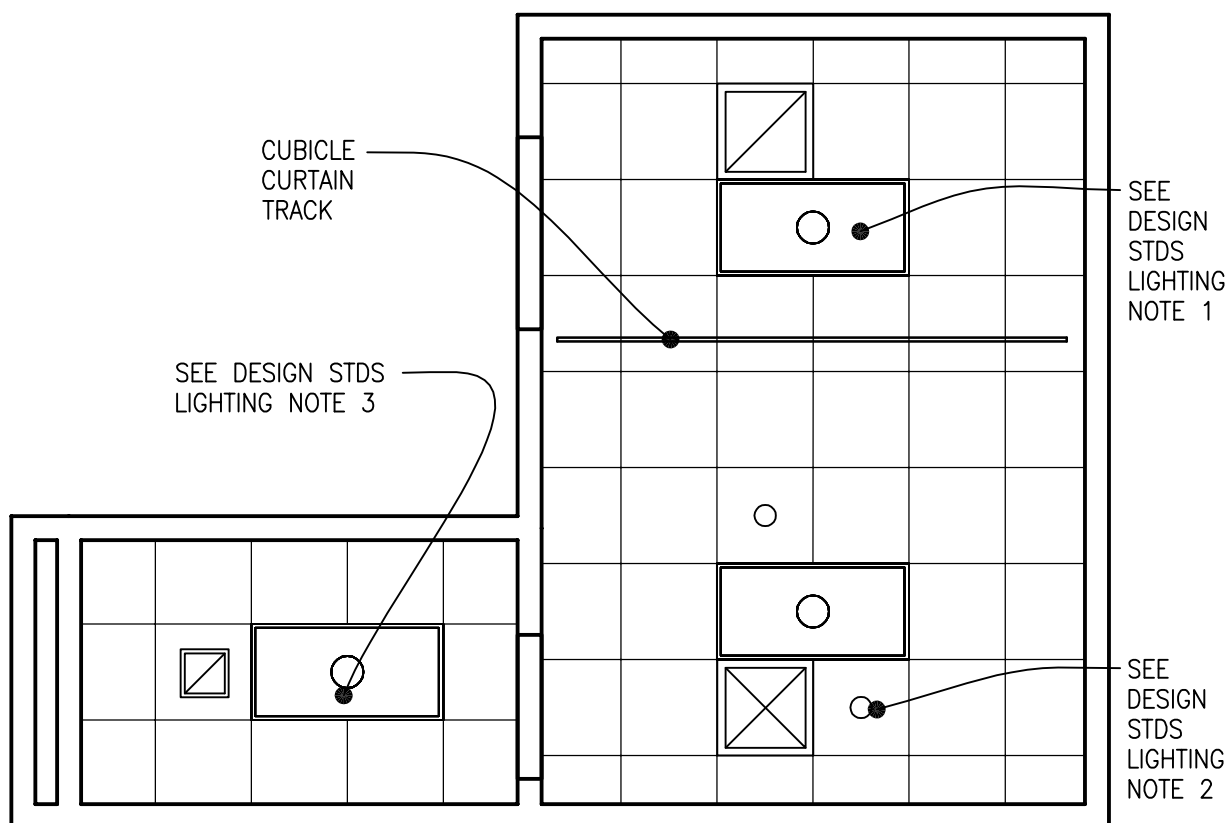
Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.

Ultrasound Room (XDUS1)

180 NSF

Reflected Ceiling Plan

16.8 NSM



The locations and quantities of the air outlets and inlets are tentative and may not represent the optimum design solution(s) envisioned by the designer, who shall study the layout, calculate air volumes, and may alter the arrangement shown in the reflected ceiling plan, as required, to produce a project-specific air distribution system design.

Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.

ULTRASOUND ROOM (XDUS1): Design Standards

ARCHITECTURAL

Ceiling:	Acoustical Tile Ceiling
Ceiling Height:	Coordinate with Equipment Manufacturer
Wall Finish:	Paint
Wainscot:	--
Base:	Vinyl
Floor Finish:	Vinyl Composition Tile
Sound Protection:	--

Notes:

1. Provide a 4'-0" wide door into the Ultrasound Room.

LIGHTING

Ultrasound Room:

General: Fluorescent lights will provide illumination level up to 40 FC during patient transfer on and from the table, equipment setting, room cleaning, and equipment maintenance.

Special: Incandescent luminaires controlled by dimmer will provide lower illumination levels down to 5 FC during scanning. Warmer light color will enhance skin appearance and patient comfort. Luminaires shall be located to avoid direct glare for patient comfort.

Ultrasound Toilet Room:

Fluorescent light will provide illumination up to 20 FC.

Notes:

1. 2'x4' Fluorescent recessed luminaire, acrylic prismatic lens, with (3) F32T8 lamps, 3500 K, CRI=82 (minimum)
2. 8-inch diameter recessed incandescent down light, with recessed Fresnel lens, and 150W/A21 inc. horizontally mounted lamp.
3. 2'x2' Fluorescent recessed luminaire, acrylic prismatic lens, with (3) F14T5 lamps, 4100 K, CRI=85 (minimum)

4. 3-way switch for fluorescent lights control, located at entrance door and at control area
5. Dimmer for incandescent down lights control
6. Occupancy sensor for automatic light control; switchbox type, wall mounted

POWER

The electrical power as shown is to be used as a guide only. Equipment locations, dimensions and wiring requirements should be per the ultrasound system suppliers' equipment drawings. Electrical trades should provide necessary conduits, openings, bushings, nipples, flexible conduits, recessed, wall mounted raceways, etc., as required at the various junction boxes, and conduit terminations to allow proper connections of the ultrasound equipment and related accessories.

Emergency: --

Notes:

COMMUNICATION/SPECIAL SYSTEMS

ADP:	Yes
Data:	Yes
Telephone:	Yes
Intercom:	--
Nurse Call:	--
Public Address:	--
Radio/Entertainment:	--
MATV:	--
CCTV:	--
MID:	--
Security/Duress:	--
VTEL:	--
VA Satellite TV:	--

Notes:

1. Nurse call in toilet room to annunciate at local reception desk and outside of the toilet room.
2. PACS: two 4-port telecommunication outlets per PACS station

HEATING, VENTILATING AND AIR CONDITIONING

Inside Design Conditions: 70 °F - 75 °F
 (21 °C - 24 °C)
 30% to 60% Relative humidity
 Minimum Air Changes per hour: 8
 - Supply Air
 100% Exhaust: Toilet Room
 100% Outside air: No
 Room Air Balance: Positive for Ultrasound,
 Negative for Toilet Room
 Dedicated Exhaust System: No
 Occupancy: 3 people
 AC Load-(Equipment): 3,600 Btuh –
 4,800 Btuh
 (1,050W- 1,400 W)
 AC Load-Lighting: 1.1 W/SF (12 W/M²)

Notes:

1. Verify cooling loads and other specific requirements with the equipment manufacturer on a specific project.

PLUMBING AND MEDICAL GASES

Cold Water: Yes
 Hot Water: - Yes
 Laboratory Air: --
 Laboratory Vacuum: --
 Sanitary Drain: -- Yes
 Reagent grade Water: --
 Medical Air: Yes
 Medical Vacuum: Yes
 Oxygen: Yes

Notes:

ULTRASOUND ROOM (XDUS1): Equipment Guide List

JSN	NAME	QTY	ACQ / INS	DESCRIPTION	SPEC
A1010	Telecommunication Outlet	1	CC	Telecommunication outlet location.	27 31 00
A1012	Telephone, Wall Mounted, 1 Line	1	CC	Telephone, wall mounted, 1 line.	27 31 00
A1066	Mirror, Float Glass, With SS Frame, 36x18	1	CC	A high quality 1/4" polished float glass mirror 36X18, framed in a one-piece, bright polished, stainless steel channel frame with 90° mitered corners. All edges of the mirror are protected by absorbing filler strips. Mirror has a galvanized steel back with integral horizontal hanging brackets and wall hanger for concealed mounting. For mounting above single wall mounted lavatories located in toilet areas, Doctors examination offices, etc. May also be used above double lavatories, either wall or countertop mounted, found in restroom areas.	10 28 00
A5075	Dispenser, Soap, Disposable	1	W	Disposable soap dispenser. One-handed dispensing operation. Designed to accommodate disposable soap cartridge and valve.	
A5080	Dispenser, Paper Towel, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, single-fold, paper towel dispenser. Dispenser features: tumbler lock; front hinged at bottom; and refill indicator slot. Minimum capacity 400 single-fold paper towels. For general purpose use throughout the facility.	10 28 00
A5106	Waste Disposal Unit, Sharps w/Glove Dispenser	1	W	The unit is designed for the disposal of sharps and complies with OSHA guidelines for the handling of sharps. It shall house a 5 quart container and be capable of being mounted on a wall. It shall have a glove dispenser attached. The unit shall be secured by a locked enclosure.	
A5145	Hook, Garment, Double, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, double garment hook. Equipped with a concealed mounting bracket that is secured to a concealed wall plate. For general purpose use throughout the facility to hang various items of apparel.	10 28 00

A5180	Track, Cubicle, Surface Mounted, With Curtain	1	CC	Surface mounted cubicle track, with curtain. Track constructed of thick extruded aluminum. Equipped with self lubricating carriers, beaded drop chain hooks, and flame resistant curtain. To include removable end caps. Designed to be suspended around patient areas where privacy is needed. Price listed is per foot of the track, curtains to be priced per quote.	10 21 16
C03F0	Cabinet, U/C/B, 1 Shelf, 2 Half DR, 2 DO, 36x30x22	1	CC	Standing height under counter base cabinet with an adjustable shelf and two half width drawers above solid hinged doors. Also referred to as a combination cabinet or a drawer and cupboard cabinet. For general purpose use throughout the facility.	12 32 00
C03P0	Cabinet, Sink, U/C/B, 2 Door, 30" W	1	CC	Standing height under counter base sink cabinet. 36" H x 30" W x 22" D with two solid hinged doors. Also referred to as a double-door sink cabinet. For general purpose use throughout the facility where a sink is to be used. Coordinate actual clear cabinet dimension with the actual outside dimension of sink that is specified to ensure that they are compatible.	22 44 00
CE030	Cabinet, W/H, 2 SH, 2 GDO, Sloping Top, 38x30x13	1	CC	Wall hung cabinet with two adjustable shelves, solid hinged doors, and sloping top. Also referred to as a solid hinged double door wall case. For general purpose use throughout the facility.	22 44 00
CS150	Sink, SS, Single Compartment, 10x19x16 ID	1	CC	Single compartment stainless steel sink, drop-in, self-rimming, ledge-type, connected with a drain and provided with a mixing faucet. It shall also be provided with pre-punched fixture holes on 4" center, integral back ledge to accommodate deck-mounted fixtures, brushed/polished interior and top surfaces, and sound deadened. Recommended for use in suspended or U/C/B sink cabinets having a high plastic laminate or Chemsurf laminate countertop/work surface. Coordinate actual outside sink dimensions with the actual clear dimension of cabinet specified to ensure that they are compatible. For general purpose use throughout the facility.	22 44 00

CT030	Countertop, High Pressure Laminate	5	CC	High pressure laminate countertop (composition of wood particle core with plastic laminate surface) having a hard smooth surface finish, standard thickness of 1", and a 4" butt backsplash/curb. Also referred to as a work surface or work top. Available in a wide choice of colors, patterns, and depths. Used in general purpose areas requiring a basic work surface arrangement with limited heat resistance and poor chemical resistance. Pricing based upon a 24" depth.	12 36 00
E0930	Locker, Supply, 6 Drawers, Mobile, 29"W x 20"D	1		THIS TYPICAL INCLUDES: 1 Mobile Supply Locker 2 Tray/Shelf 3 Drawers, 3"H (76mm) 3 Drawers, 6"H (152mm) Drawer Organizer Bins	
E0945	Cart, Computer, Mobile, 36"H x 32"W x 22"D	1		THIS TYPICAL INCLUDES: 1 Cart Body, Style-A Narrow, w/Raised Edge Top 1 Flip-Up Shelf 1 Sharps Container Holder 1 Wastebasket and Holder 1 Chart Holder 2 Drawers, 3"H (76mm) 2 Drawers, 6"H (152mm) Drawer Organizer Bins	
F0205	Chair, Side With Arms	1		Upholstered side chair, 32" high X 21" wide X 23" deep with arms, padded seats and padded backs. Seat height is a minimum of 17". Available with or without sled base.	
F0340	Stool, Self Adjusting	1		Self adjusting stool. Consists of a foam padded upholstered seat with attached foot rest for added comfort. Mounted on swivel casters. Designed for doctor's use during examinations.	
F0355	Footstool, Straight	1		Step stool. Used to assist patients getting on and off exam or surgical tables. Fitted with electrically conductive rubber tips.	

F2000	Basket, Wastepaper, Round, Metal	1		Round wastepaper basket, approximately 18" high X 16" diameter. This metal unit is used to collect and temporarily store small quantities of paper refuse in patient rooms, administrative areas and nursing stations.	
F3200	Clock, Battery, 12" Diameter	1		Clock, 12" diameter. Round surface, easy to read numbers with sweep second hand. Wall mounted unit for use when impractical to install a fully synchronized clock system. Battery operated, (batteries not included).	
M0755	Flowmeter, Oxygen, Low Flow	1		Oxygen flowmeter. Consists of a clear crystal flowtube calibrated to 3.5 or 8 LPM depending on manufacturer. For oxygen regulation in hospital settings. Database pricing includes DISS fitting and DISS power outlet and wall adapter. Other fitting and adapter configurations are available.	
M0765	Regulator, Vacuum	1		Vacuum pressure regulator for connection to central piped vacuum system. Standard display scale is graduated at least from 0 to 200 mm Hg of vacuum. Displays on specialized regulators may cover other vacuum ranges. Regulator type (continuous, intermittent, continuous/intermittent, surgical, pediatric, thoracic, etc.) as required. To be used in delivery, neonatal, pediatrics or any area where suction is required. Database pricing reflects continuous regulators graduated to 200 mm Hg with a full line vacuum selection switch and DISS configured inlets and outlets.	
M1620	Holder, Chart, Patient, Wall or Door Mounted	1	CC	Wall or door mounted patient chart holder. Constructed of durable plastic or metal. Used for holding patient records. Size as required.	

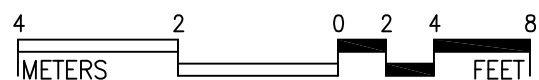
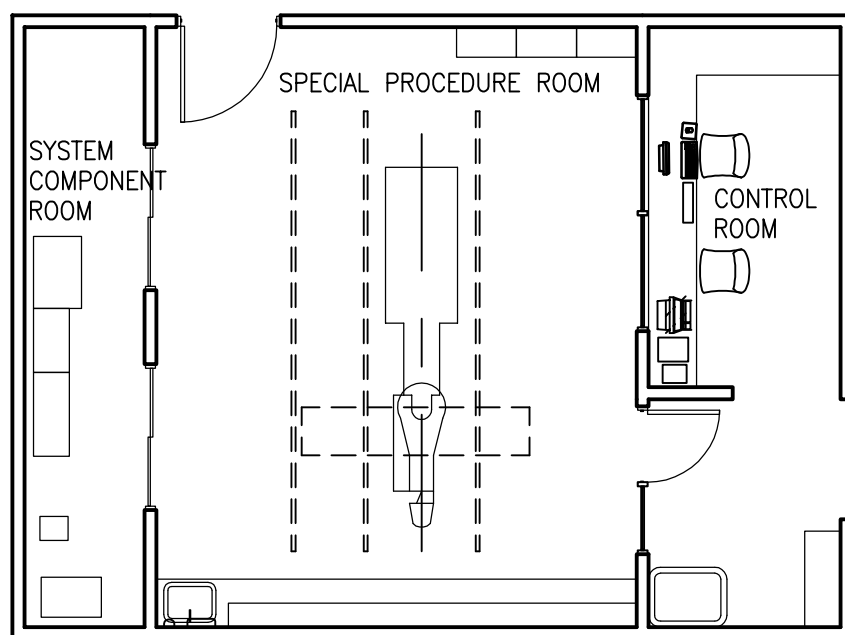
M1801	Computer, Microprocessing, w/Flat Panel Monitor	1		Desk top microprocessing computer. The unit shall consist of a central processing mini tower, flat panel monitor, keyboard, mouse and speakers. The system shall have the following minimum characteristics: a 2.8 GHz Pentium processor; 512 MB memory; 80GB hard drive; 32/48x CD-ROMDVD combo; a 3.5" floppy drive; 1.44MB network interface card; video 32 MB NVIDIA; a 15 inch flat panel color monitor. The computer is used throughout the facility to input, manipulate and retrieve information.	
M3072	Frame, Infectious Waste Bag w/Lid	1		Frame for an infectious waste collection bag. Made of heavy tubular stainless steel with heavy gauge welded steel platform. Adjust to hold 18" or 25" trash bags. Mounted on ball bearing casters and includes permanently mounted hinged lid. Provides means of bagging infectious waste at point of waste generation.	
M4255	Stand, IV, Adjustable	1		Adjustable IV stand with 4-hook arrangement. Stand has stainless steel construction with heavy weight base. It adjusts from 66 inches to 100 inches and is mounted on conductive rubber, ball bearing, swivel casters. Stand is used for administering intravenous solutions.	
M4266	Pump, Volumetric, Infusion, Multiple Line	1		Volumetric infusion pump. Pump is self-regulating with automatic sensor and adjustable rate. Equipped with visual and audible alarms and up to 10 hour capacity battery. For the administration of a wide variety of therapeutic agents where precise control is required. Unit provides individual control to IV lines simultaneously.	
M4655	Stretcher, Mobile, CRS, 9 Position	1		Mobile stretcher. All corrosion resistant stainless steel construction. It consists of a tubular frame with side rails, a 9-position hydraulic base with pneumatic fowler adjustment, and a 2" pad. Unit is mounted on 8" conductive casters. Designed for patient transport as well as for minor surgical procedures.	

M8810	Stand, Mayo	1		Adjustable instrument table. Table is corrosion resistant stainless steel construction and is mounted on two casters with two skid rails. It has telescopic upright adjusts from 39 inches to 60 inches with automatic locking device, and removable 13"x19" instrument tray. Designed for use in operating and procedure rooms.	
X2100	Scanner, Ultrasound, General Purpose	1		High definition, diagnostic ultrasound system for Radiology, Cardiology, Vascular, ob-gyn, Perinatology, and Surgical imaging applications. The unit employs curved, phased and linear array imaging technology. The system supports colorflow, pulse and continuous wave imaging modalities. On board software measurement packages available for all imaging applications. The system is DICOM 3.0 compatible, for easy linkage to filmless image management systems and review stations. In addition, a full line of probes and conventional recording devices are available.	
X3930	Illuminator, Film, Double, Wall Mounted	1	W	X-ray film illuminator approximately 20' H x 29' W x 6" D. This is a double, wall mounted type unit with a continuous viewing surface. The tension film grips are adjustable top and bottom with standard grip strip. The unit's balanced-light viewing is assured by the 32W circular fluorescent lamp. It provides 500 feet candles of cool operation across the entire 14" X 17" viewing surface. It is available with or without film-activated switch. The unit can be used in hospitals, examining rooms, satellite office or lab.	



IR Suite

Key Plan



$$1/8" = 1'-0"$$

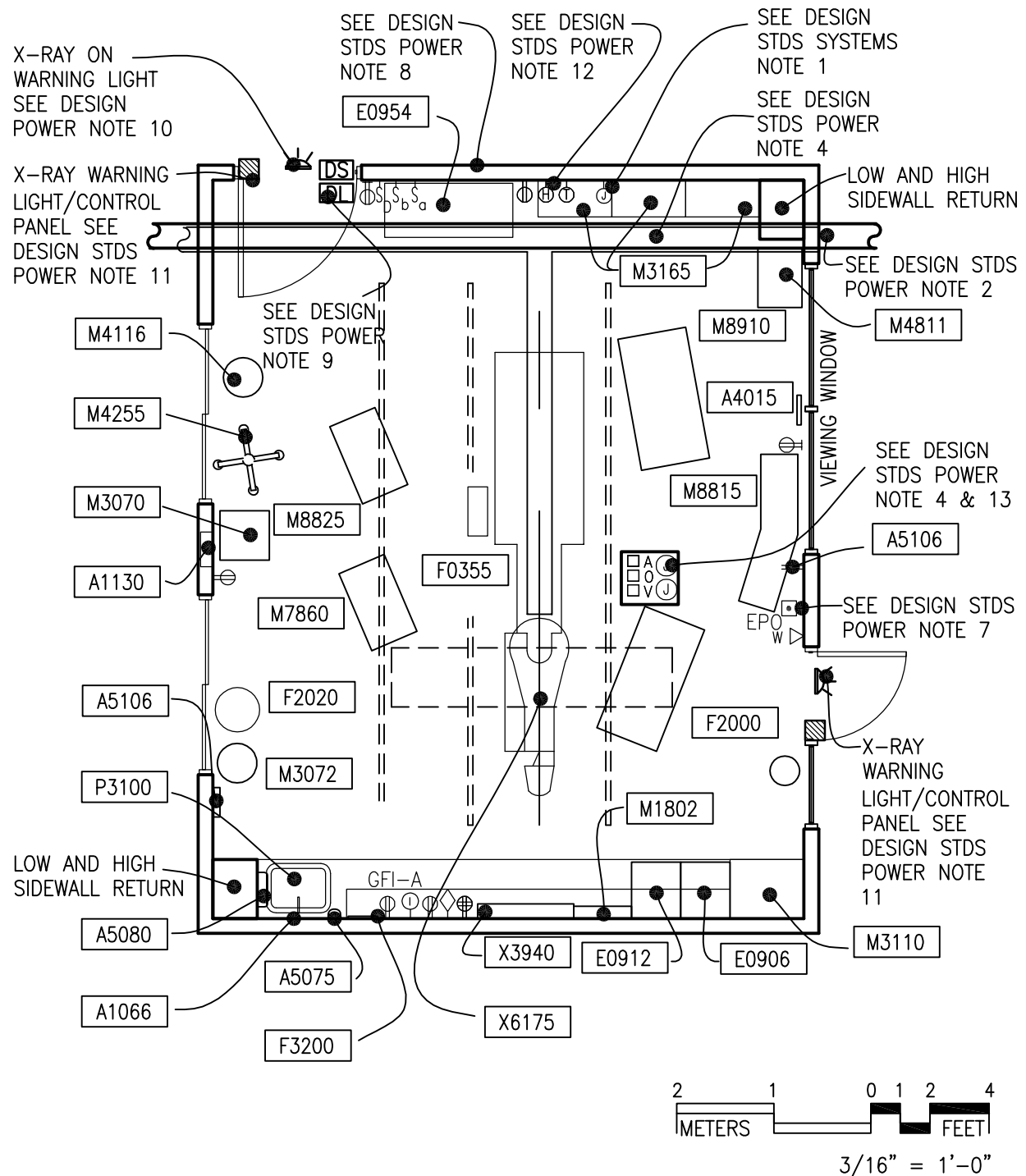
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IR Special Procedure Room (XABP1)

500 NSF

Floor Plan

46.5 NSM



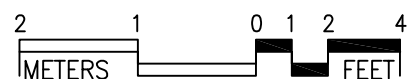
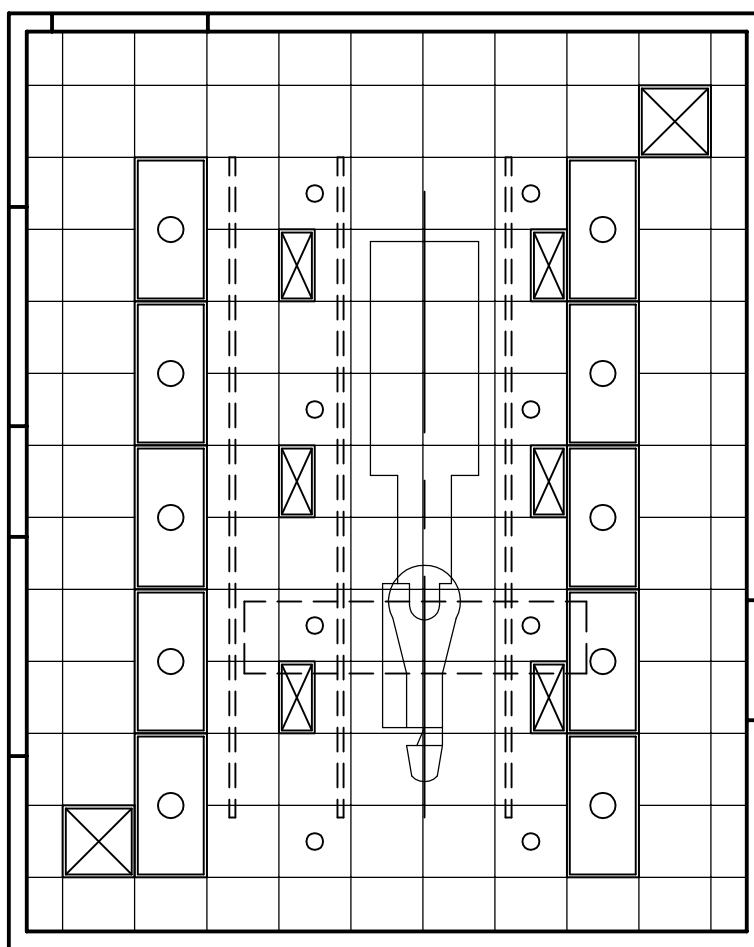
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IR Special Procedure Room (XABP1)

500 NSF

Reflected Ceiling Plan

46.5 NSM



$$\frac{3}{16}'' = 1'-0''$$

The locations and quantities of the air outlets and inlets are tentative and may not represent the optimum design solution(s) envisioned by the designer, who shall study the layout, calculate air volumes, and may alter the arrangement shown in the reflected ceiling plan, as required, to produce a project-specific air distribution system design.

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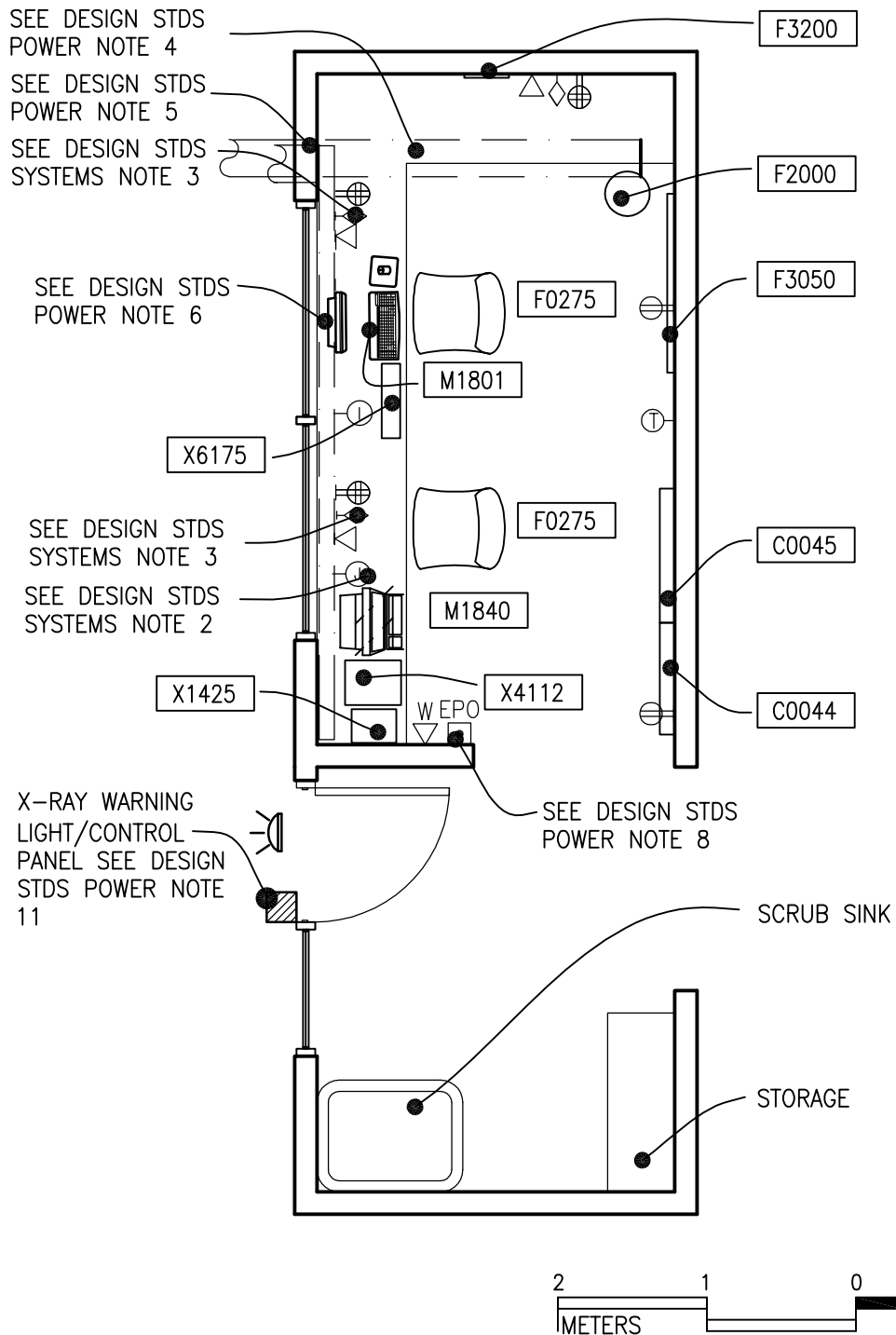


IR Special Procedure Control Room (XACR1)

120 NSF

Floor Plan

11.2 NSM



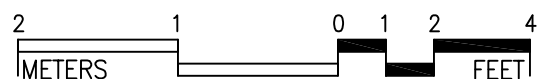
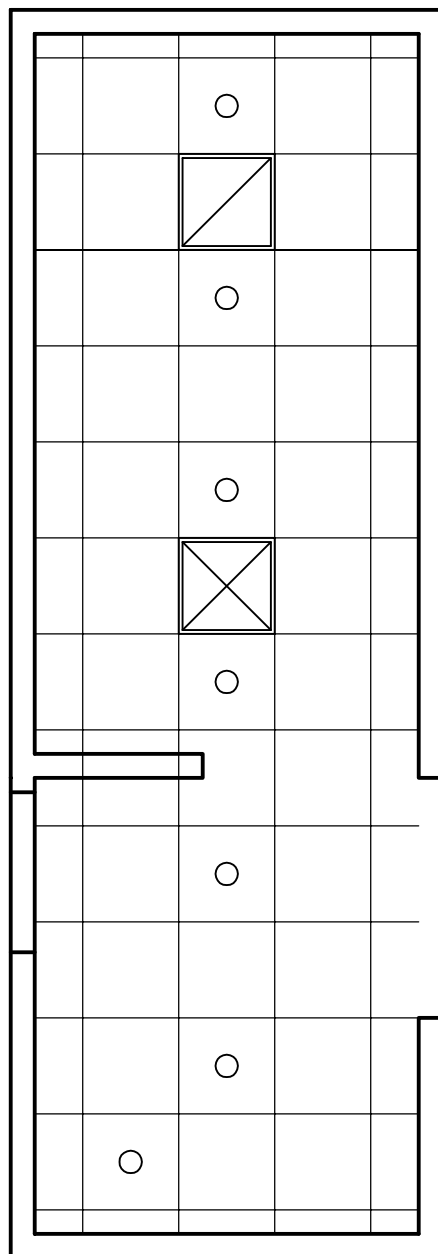
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IR Special Procedure Control Room (XACR1)

120 NSF

Reflected Ceiling Plan

11.2 NSM



1/4" = 1'-0"

The locations and quantities of the air outlets and inlets are tentative and may not represent the optimum design solution(s) envisioned by the designer, who shall study the layout, calculate air volumes, and may alter the arrangement shown in the reflected ceiling plan, as required, to produce a project-specific air distribution system design.

Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.

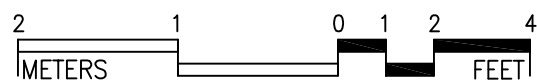
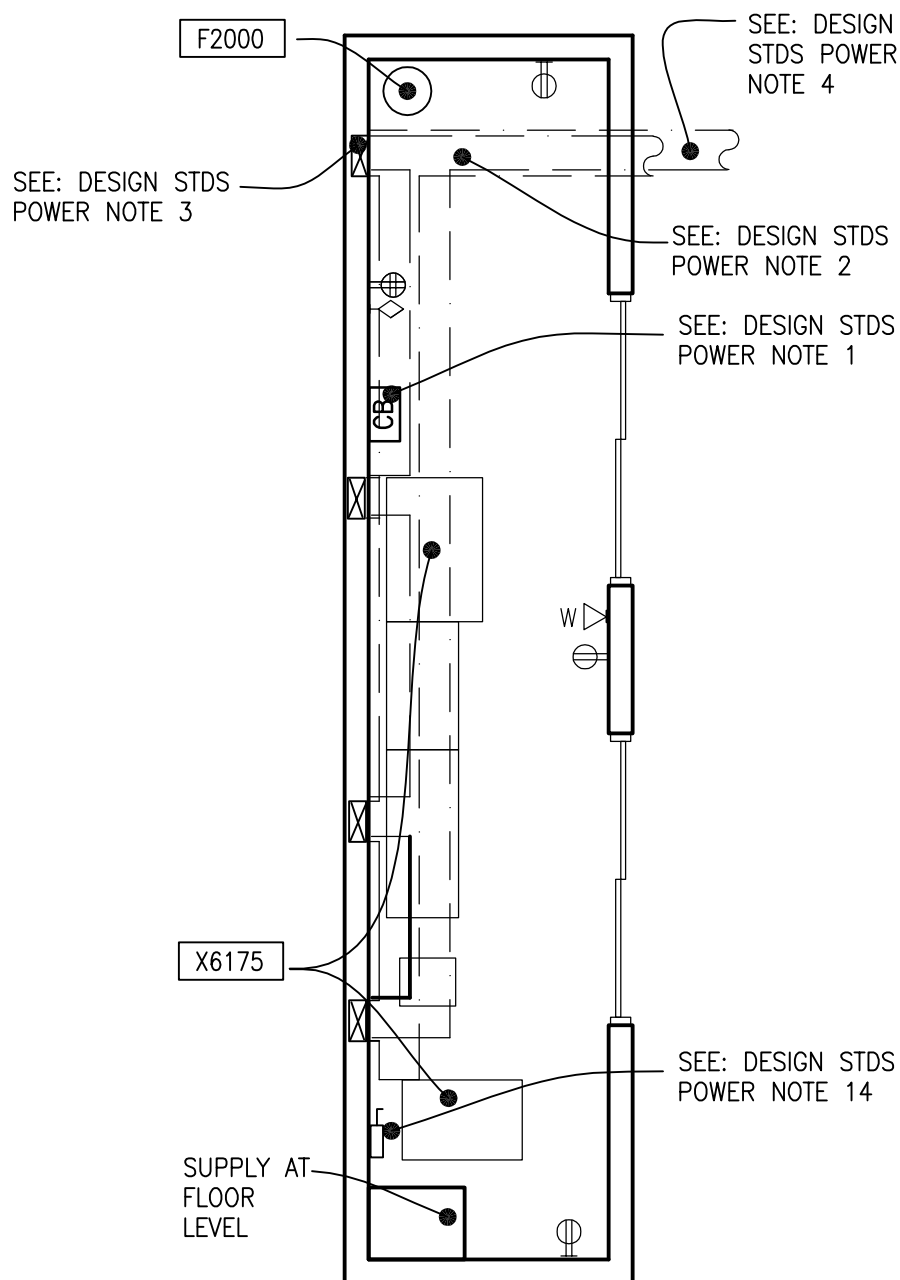


IR Special Procedure System Component Room (XACV1)

120 NSF

Floor Plan

11.2 NSM



1/4" = 1'-0"

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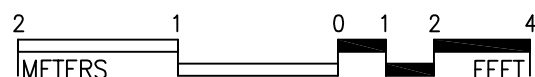
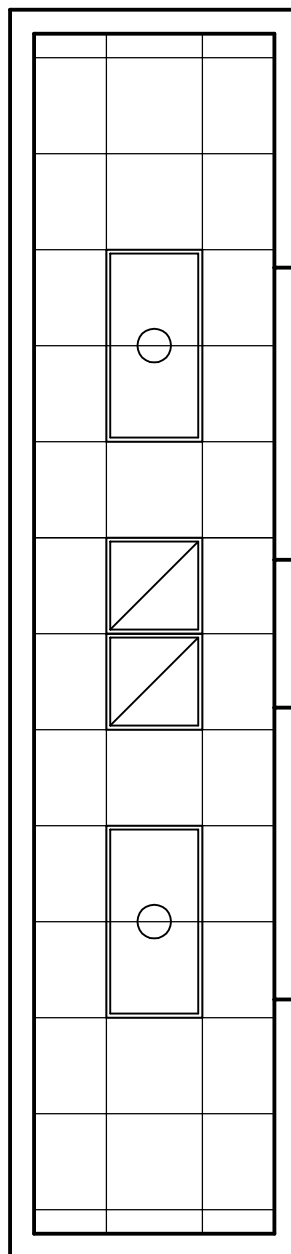


IR Special Procedure System Component Room (XACV1)

120 NSF

Reflected Ceiling Plan

11.2 NSM



$$1/4" = 1'-0"$$

The locations and quantities of the air outlets and inlets are tentative and may not represent the optimum design solution(s) envisioned by the designer, who shall study the layout, calculate air volumes, and may alter the arrangement shown in the reflected ceiling plan, as required, to produce a project-specific air distribution system design.

Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.



INTERVENTIONAL RADIOLOGY (XACV1, XABP1, & XACR1): Design Standards

ARCHITECTURAL

Ceiling:	Acoustical Tile
Ceiling Height:	Coordinate with Equipment Manufacturer
Wall Finish:	Paint
Wainscot:	--
Base:	Resilient Base / Cove
Floor Finish:	Sheet Vinyl
Sound Protection:	--

Notes:

1. Provide a 4'-0" wide shielded door into the Special Procedure Room
2. Provide a shielded viewing window from the Special Procedure Room Control Room to the Special Procedure Room.

LIGHTING

Special Procedure Room:

General: Fluorescent lights will provide higher illumination level up to 150 FC during patient transfer, procedure equipment setting, room cleaning and equipment maintenance. Luminaires shall be located to avoid conflict with radiographic equipment ceiling rails.

Special: Incandescent luminaires controlled by dimmer will provide lower illumination levels down to 0.7 FC during procedure for image viewing on monitor.

Special minor surgery task light shall provide local illumination up to 2500 FC.

Emergency battery pack light shall be provided for illumination during power outage.

Ceiling mounted luminaires shall be located to avoid conflict with radiographic equipment ceiling rails.

Special Procedure Control Room:

General: Fluorescent lights will provide higher illumination level up to 30 FC for room cleaning, and equipment maintenance.

Special: Incandescent luminaires controlled by dimmer will provide lower illumination

levels down to 2 FC during procedure for monitor viewing-

Special Procedure System Component Room:

General: Fluorescent lights will provide illumination level up to 50 FC for equipment maintenance.

Notes:

1. 2'x4' Fluorescent recessed luminaire, acrylic prismatic lens, with (4) F32T8 lamps, 4100 K, CRI=85 (minimum).
2. 8-inch diameter., recessed incandescent down light, with recessed Fresnel lens, and 150W/A21 inc. horizontally mounted lamp.
3. 2'x2' Fluorescent recessed luminaire, acrylic prismatic lens, with (2) FB31T8 lamps, 3500 K.
4. Dual head emergency battery pack.
5. 3-way switch for Special Procedure Room fluorescent lights control; located at the room entrance.
6. Dimmer for Special Procedure Room incandescent down lights control.
7. 3-way switch for Control room Fluorescent lights control.
8. Dimmer for Control Room incandescent down lights.
9. Switch for Equipment Room Fluorescent lights control.
10. Occupancy sensor for automatic light control; ceiling mounted.

POWER

The electrical power as shown is to be used as a guide only. Equipment locations, dimensions and wiring requirements should be per the X-ray system suppliers' equipment drawings. Electrical trades should provide necessary conduits, openings, bushings, nipples, flexible conduits, surface, recessed, wall mounted and floor raceways, etc., as required at the various junction boxes, duct and conduit terminations to allow proper connections of the x-ray equipment and related accessories --

Emergency: --
 Emergency power for special procedure room equipment, controls, and selected receptacles as determined by the Hospital. UPS power may be required for specific monitoring systems, instrumentation, and selected workstations as determined by hospital.

Notes:

1. 480V, 3P-150A circuit breaker, with adjustable trip, shunt trip, flush mounted. Run empty 50 mm (2"C) from circuit breaker to the floor duct.
2. 300 mm x 90 mm (12" W x 3-1/2" D) multi-compartment flush floor duct with screw-on cover. Connect to vertical wall duct.
3. 300 mm x 90 mm (12" W x 3-1/2" D) multi-compartment flush vertical wall duct with screw-on cover. Connect to x-ray floor duct and above ceiling duct
4. 250 mm x 90 mm (10" W x 3-1/2" D) multi-compartment above ceiling duct with screw-on cover. Connect to vertical wall duct.
5. 300 mm x 90 mm (10" W x 3-1/2" D) multi-compartment flush vertical wall duct with screw-on cover. Connect to floor duct and wall duct
6. 120 mm x 90 mm (4-3/4" W x 3-1/2" D) multi-compartment surface wall duct with screw-on cover. Connect to vertical wall duct
7. Emergency Power Off pushbutton station. Refer to specific radiology equipment requirements for EPO. Connect to shunt trip at main disconnect.
8. Door switch with NO/NC contacts. Connect to x-ray system control circuit. The x-ray system should not start when the entrance door open.
9. Magnetic door interlock with x-ray controller to prevent interruption of scanning procedure (optional).
10. Warning light with wording "X-RAY ON, DO NOT ENTER". Provide

interface with x-ray system controller via interface relay.

11. X-ray warning light interface relay with low voltage power supply to match x-ray equipment requirements.
12. Power outlet for elapsed timer, mounting height per equipment manufacturer's recommendations.
13. Power connection above ceiling to modular ceiling service column.
14. 480V, 3P-30A fused disconnect switch for equipment room air conditioning unit.

COMMUNICATION/SPECIAL SYSTEMS

ADP:	Yes
Data:	Yes
Telephone:	Yes
Intercom:	Yes
Nurse Call:	Yes
Public Address:	--
Radio/Entertainment:	--
MATV:	--
CCTV:	Yes
MID:	--
Security/Duress:	--
VTEL:	--
VA Satellite TV:	--
Notes:	

1. Junction box for CCTV camera with conduit to Control area.
2. Junction box for CCTV monitor.
3. PACS: two 4-port telecommunication outlets per PACS station
4. Junction box above ceiling for data connection to modular ceiling service column.

HEATING, VENTILATING AND AIR CONDITIONING

Inside Design Conditions:	70°F - 75°F (21°C - 24°C) for Special Procedure Room and Special Procedure Control Room, 70°F (21°C) for Special Procedure System Component Room. 30% - 60% Relative humidity for all rooms
Minimum Air Changes per hour- Supply Air	15 for Special Procedure Room 6 for other rooms
100% Exhaust:	No
100% Outside air	No
Room Air Balance:	Positive – All Rooms
Dedicated Exhaust System:	No

Occupancy:

6 people for Special Procedures Room,
2 People for other Rooms

AC Load-Equipment: 2,500 Btuh –
(750W) for Special Procedures Room
1500 Btuh (500W) for Special
Procedures Control Room,
12,000 Btuh (3,500W) for Special
Procedures System Component Room

AC Load-Lighting: 2.6 W/SF (27 W/M²)
in Special Procedures Room,
W/SF (25 W/M²) in Special Procedures
Control Room,
1.7 W/SF (18 W/M²) in Special
Procedure System Component Room.

Notes:

1. Verify cooling loads and other specific requirements with the equipment manufacturer on a specific project.
2. Provide dedicated AC unit to serve the Special Procedure System Component Room.

PLUMBING AND MEDICAL GASES

Cold Water:	Yes
Hot Water:	Yes
Laboratory Air:	--
Laboratory Vacuum:	--
Sanitary Drain:	Yes
Reagent grade Water:	--
Medical Air:	Yes
Medical Vacuum:	Yes
Oxygen:	Yes

Notes:



INTERVENTIONAL RADIOLOGY (XABP1, XACR1, & XACV1): Equipment Guide List

XABP1 Procedure Room					
JSN	NAME	QTY	ACQ / INS	DESCRIPTION	SPEC
A1010	Telecommunication Outlet	1	CC	Telecommunication outlet location.	27 31 00
A1012	Telephone, Wall Mounted, 1 Line	1	CC	Telephone, wall mounted, 1 line.	27 31 00
A1066	Mirror, Float Glass, With SS Frame, 36x18	1	CC	A high quality 1/4" polished float glass mirror 36X18, framed in a one-piece, bright polished, stainless steel channel frame with 90° mitered corners. All edges of the mirror are protected by absorbing filler strips. Mirror has a galvanized steel back with integral horizontal hanging brackets and wall hanger for concealed mounting. For mounting above single wall mounted lavatories located in toilet areas, Doctors examination offices, etc. May also be used above double lavatories, either wall or countertop mounted, found in restroom areas.	10 28 00
A1130	Cabinet, Control, Nitrogen	1	CC	Nitrogen control cabinet. Unit consists of supply cut-off valve, supply pressure gauge, pressure regulator (adjustable 0 to 200 PSI), outlet pressure gauge, nitrogen outlet and connection to surgical gas column. Specify recessed or surface mounting. Designed for powering surgical pneumatic tools.	
A4015	Clock, Elapsed Time, Electric	1	CC	Elapsed time digital electric clock. Single display time that can be used either as a clock or elapsed time indicator. Clock consists of buttons to set minutes, and hours for the time. For use in operating and delivery room, and medical service columns. Analog or digital displays may be provided as specified by the user.	
A5075	Dispenser, Soap, Disposable	1	W	Disposable soap dispenser. One-handed dispensing operation. Designed to accommodate disposable soap cartridge and valve.	

A5080	Dispenser, Paper Towel, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, single-fold, paper towel dispenser. Dispenser features: tumbler lock; front hinged at bottom; and refill indicator slot. Minimum capacity 400 single-fold paper towels. For general purpose use throughout the facility.	10 28 00
A5106	Waste Disposal Unit, Sharps w/Glove Dispenser	1	W	The unit is designed for the disposal of sharps and complies with OSHA guidelines for the handling of sharps. It shall house a 5 quart container and be capable of being mounted on a wall. It shall have a glove dispenser attached. The unit shall be secured by a locked enclosure.	
A5145	Hook, Garment, Double, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, double garment hook. Equipped with a concealed mounting bracket that is secured to a concealed wall plate. For general purpose use throughout the facility to hang various items of apparel.	10 28 00
E0906	Locker, Supply, General, Wall Mtd, 23"W x 20"D	2	W	THIS TYPICAL INCLUDES: 1 Wall Mounted Rail 1 Locked Storage Container 2 Tray/Shelves 1 Drawer, 3"H (76mm) 3 Drawers, 6"H (152mm) 2 Drawers, 9"H (229mm) 1 Tray/Shelf Divider Drawer Organizer Bins Consider the need for an E0921 to transport the locker from place to place.	



E0912	Locker, Supply, Med Surg, Wall Mtd	1	W	<p>Medical/Surgical Supply locker, Wall Mounted, Approx 23"W x20"D. THIS TYPICAL INCLUDES:</p> <ul style="list-style-type: none"> 1 Wall Mounted Rail 1 Locked Storage Container 4 Tray/Shelves 5 Drawers, 3"H (76mm) 2 Drawers, 6"H (152mm) 2 Tray/Shelf Dividers Drawer Organizer Bins <p>Consider the need for an E0921 to transport the locker from place to place.</p>	
E0954	Cart, Emergency, Mobile, 66"H x 52"W x 22"D	1	W	<p>THIS TYPICAL INCLUDES:</p> <ul style="list-style-type: none"> 1 Cart body, style-A narrow, w/raised edge top and breakaway lock bar w/tabs 2 Accessory rails, side 1 Accessory rail, back 1 Defibrillator tray; 1 IV pole 1 Flip-up shelf 1 Wastebasket and holder 1 Oxygen tank holder 1 Cardiac board and hanger 1 Electrical box-4 outlet 1 Cord wrap 4 Drawer, 3"H (76mm) 3 Drawer, 6"H (152mm) Drawer organizer bins. 	
E1500	Rail, MOD, W/MNTD, HX144XD	1	W	Wall mounted rail used for hanging (mounting) lockers, shelves drawers on a wall.	
F0340	Stool, Self Adjusting	1	W	Self adjusting stool. Consists of a foam padded upholstered seat with attached foot rest for added comfort. Mounted on swivel casters. Designed for doctor's use during examinations.	
F0355	Footstool, Straight	1	W	Step stool. Used to assist patients getting on and off exam or surgical tables. Fitted with electrically conductive rubber tips.	

F2000	Basket, Wastepaper, Round, Metal	1	W	Round wastepaper basket, approximately 18" high X 16" diameter. This metal unit is used to collect and temporarily store small quantities of paper refuse in patient rooms, administrative areas and nursing stations.	
F2020	Can, Trash, 44 Gallon	1	W	Forty four (44) gallon trash can, 32" high X 24" diameter, with lid. Used to collect and transport refuse from a point of origin to point of disposal (example: from soiled utility or a nursing unit to the trash compactor at housekeeping).	
F3200	Clock, Battery, 12" Diameter	1	W	Clock, 12" diameter. Round surface, easy to read numbers with sweep second hand. Wall mounted unit for use when impractical to install a fully synchronized clock system. Battery operated, (batteries not included).	
M0750	Flowmeter, Air, Connect w/50 PSI Supply	1	W	Air flowmeter. Unit has a stainless steel needle valve with clear flowtube for connection to 50 PSI air outlet from central pipeline system. Requires the appropriate adapter for connection to the wall outlet and fitting to connect to tubing. Database prices reflect fittings with an attached DISS power outlet. Other outlet and adapter configurations are available.	22 63 00
M0755	Flowmeter, Oxygen, Low Flow	1	W	Oxygen flowmeter. Consists of a clear crystal flowtube calibrated to 3.5 or 8 LPM depending on manufacturer. For oxygen regulation in hospital settings. Database pricing includes DISS fitting and DISS power outlet and wall adapter. Other fitting and adapter configurations are available.	22 63 00
M0765	Regulator, Vacuum	2	W	An air/oxygen mixer is designed to accurately control a pressurized gas mixing with an oxygen concentration. Unit contains audible alarms to warn of supply failure, an auxiliary outlet and a oxygen concentration control adjustment range from 21% to 100%. The unit can also be used to supply an accurate pre-mixed gas source to respiration or ventilator units. A specific application may require an additional air inlet filter/water trap.	22 62 00

M1802	Work Station, Fold Down and Computer	1	W	A wall mounted retractable work station. Work station is used as a computer station in treatment rooms, exam rooms and areas where physical space is limited.	
M3070	Hamper, Linen, Mobile, w/Lid	1	W	Mobile linen hamper with hand or foot operated lid. Made of heavy tubular stainless steel with heavy gauge welded steel platform. Holds 25" hamper bags. Mounted on ball bearing casters. For linen transport in hospitals and clinics.	
M3072	Frame, Infectious Waste Bag w/Lid	1	W	Frame for an infectious waste collection bag. Made of heavy tubular stainless steel with heavy gauge welded steel platform. Adjust to hold 18" or 25" trash bags. Mounted on ball bearing casters and includes permanently mounted hinged lid. Provides means of bagging infectious waste at point of waste generation.	
M3110	Cabinet, Warming, F/S, 2 Heated Compartment, Elect	1	CC	Freestanding, single or double door warming cabinet with 2 heated compartments. Compartment and exterior walls are made from stainless steel. Thick fiberglass insulation maintains the interior temperature and keeps the exterior from becoming too hot. Equipped with a sealing door, thermostatic temperature control, status display, heat indicating light, over temperature protection, alarms and an air circulating fan. Unit may have an optional temperature recorder. Manufacturer recommends using a fused disconnect switch in the electrical power circuit. Cabinet may also be installed in a recess. Designed for heating and storing solutions and blankets used in patient care areas.	
M3165	Cabinet, Catheter Storage	5	W	A cabinet to be used for the hanging storage of catheters. Cabinet comes with adjustable laminate shelves, slide-out arms equipped with hangers to hold various size catheters, and doors. Door locks are an optional accessory.	
M4116	Monitor, Vital Signs	1	W	Electronic sphygmomanometer. LCD displays non-invasive blood pressure, pulse rate and temperature. Used in hospitals and clinics. Includes an optional mobile stand.	

M4255	Stand, IV, Adjustable	1	W	Adjustable IV stand with 4-hook arrangement. Stand has stainless steel construction with heavy weight base. It adjusts from 66 inches to 100 inches and is mounted on conductive rubber, ball bearing, swivel casters. Stand is used for administering intravenous solutions.	
M4266	Pump, Volumetric, Infusion, Multiple Line	2	W	Volumetric infusion pump. Pump is self-regulating with automatic sensor and adjustable rate. Equipped with visual and audible alarms and up to 10 hour capacity battery. For the administration of a wide variety of therapeutic agents where precise control is required. Unit provides individual control to IV lines simultaneously.	
M4811	Pump, Intra-Aortic, Balloon	1	W	Intra-aortic balloon pump. Item is used to treat cardiogenic shock resulting from extensive myocardial injury or damage. The pump shall function from line or battery power and is to be a mobile unit. It contains physiological monitoring, pacing, and pumping capabilities. It requires minimal set-up time and has immediate pumping capability. Adjustments can be accomplished without interruption of pumping. The monitor can be mounted remotely for the clinicians convenience and permits viewing of both cardio-pulmonary bypass and intra-aortic balloon pump simultaneously. The pump is designed for use in the critical care unit, operating room, cardiac cath lab and during transport.	



M7665	Defibrillator/Monitor/Recorder Automatic	1	W	Portable defibrillator-monitor-recorder with built in advisory protocol. Unit is designed for use by ambulance crews and cardiac arrest teams where a physician will not be available to determine if defibrillation is appropriate. System provides lead II ECG monitoring only, recording and logging of a resuscitation event for later review. This system provides up to 360 joules output and has an external battery charger available. Unit is sometimes referred to as an "Automatic Advisory Defibrillator" or "AAD". Unit may be line powered with an optional battery substitute pack.	
M7860	Monitoring System, Cardiac Catheterization Lab	1	W	Computerized monitoring system for use in cardiac catheterization labs and cardio-thoracic operating rooms. The system can display up to 32 different waveforms simultaneously, perform calculations of hemodynamic parameters, valve areas and cardiac output, archive procedure results and accept inputs from a variety of monitoring devices. The installed system can also include remote monitors/terminals and additional workstations and may interface with hospital-wide physiological monitoring or clinical information systems. The system includes several configurations in different locations. Database physical dimensions reflect the largest of these work centers. The estimated total 20 amp electrical requirements will be spread across several circuits in several locations. The system price varies greatly on the size and sophistication of the end user's requirements.	
M7905	Oximeter, Pulse	1	W	Pulse oximeter for continuous surveillance of patient pulse and oxygen saturation rates. Instrument features LED display, audio and visual alarms, automatic calibration and battery operation in case of power failure. Other applications include sleep studies, exercise testing and monitoring certain patients in the home (e.g. infants or patients requiring respiratory therapy).	



M8755	Aspirator, Low Pressure/Low Volume, Surgical	1	W	Low pressure, low volume surgical aspirator. Stand mounted stainless steel unit. 1/8 HP motor with variable suction intensity. It includes 600 ml graduated collection bottle, hydrophobic bacteria filter, a precision suction regulating valve, timer and a foot regulator. For post operative surgical wound drainage and general suction use.	
M8810	Stand, Mayo	1	W	Adjustable instrument table. Table is corrosion resistant stainless steel construction and is mounted on two casters with two skid rails. It has telescopic upright adjusts from 39 inches to 60 inches with automatic locking device, and removable 13"x19" instrument tray. Designed for use in operating and procedure rooms.	
M8815	Table, Instrument/Dressing, Angular	1	W	Angular instrument/dressing table. Heavy duty design and stainless steel construction. Tops are hemmed and bent together to form a sturdy sound-deadened surface. Mounted on electrically conductive ball-bearing casters. Designed for use in operating or procedure rooms.	
M8825	Table, Instrument/Dressing, CRS, approx. 36x20x34	2	W	Instrument and dressing table. Made of corrosion resistant stainless steel with a sound deadened top. Includes guard rail, shelf and two side-by-side drawers. The table is mounted on swivel, ball-bearing casters.	
M8910	Cart, Surgical Case	1	W	Surgical case cart. Unit consists of two hinged cabinet sections, each section equipped with two pull-out shelves with stops. The entire unit is mounted on six heavy duty conductive swivel casters. Used to transport surgical packs and supplies to surgery and soiled items back to central supply.	
P3100	Lavatory, Vitreous China, Slab Type	1	CC	Wall mounted, slab type, vitreous china, lavatory (approximate bowl size 7"x15"x10") with: faucet holes on 4" centers; gooseneck spout; wrist blade handles; and grid strainer. It shall be suitable for use in clinics, offices, washrooms or patient care area.	22 40 00

X3145	Screen, X-Ray, Protective, Mobile	1	W	Mobile X-ray protective screen. The unit is a single 1/6 minimum thickness lead sheet, that is sandwiched between the formed steel shells. An 8" X 10" lead glass window is placed at a convenient height. The steel construction increases the X-ray protective value and is not X-ray transparent as are wood or wood products. The unit is used for effective radiation protection of department personnel during vascular procedures. This unit can fit any application with its mobility.	
X3155	Rack, Apron/Gloves, Wall Mounted	1	W	Apron and gloves rack. This is a mobile unit which holds aprons and gloves. The body is heavy gauge steel finish in gray or green baked enamel, glove and apron holding arms are aluminum.	
X3940	Illuminator, Film, 8 Panels, Wall Mounted	1	CC	Film illuminator, 8 panels, wall mounted. This unit has a stainless steel or light gray baked enamel finish. It consists of two 4-panel illuminators, with dual switches and torque grip film holders. The lower illuminator is tilted 35 degrees from the vertical while the upper illuminator is vertical (on two tier unit). It is arranged to facilitate handling of the films and especially effective for seated viewing. The unit is used to review and analyze X-ray films.	



X6175	Radiographic/Fluoro Unit, Angio, Biplane, Digital	1	CF	This system is specifically designed to perform biplane radiographic/fluoroscopic examinations in the Special Procedures Department. On-line digital angio image processing will provide instant availability of images for review. This units characteristics and components include: 100 kW micro-processor controlled X-ray generators, C-arm and U arm with 9" multi-field Image Intensifier, integrated X-ray tube unit. The Digital Spot Imaging for both the AP and Lateral planes shall consist of a computer, keyboard with acquisition and viewing monitor and a slave monitor. The system shall be DICOM 3.0 compatible, for easy linkage to filmless image management systems and review stations. It is recommended that the TV monitors be ceiling suspended.	
X6195	Injector, Angiographic	1	CF	Angiographic injector. This unit is a specialized radiographic procedure that provides sharp, well-defined visual images of the vascular anatomy. The injector introduces a vision radiopaque fluid (contrast medium) into an artery or vein through a small catheter, making vessels contrast with their more radiolucent surrounding. The unit incorporates an electromechanical or pneumatic driven syringe to deliver the contrast medium. The syringe assemblies consist of an electric motor connected to a jackscrew that moves the syringe piston into or out of the syringe barrel. The unit is used in hospitals with radiographic procedures. Specify if unit is to be pedestal, ceiling, wall or table mounted when ordering.	

XACR1 Control Room

JSN	NAME	QTY	ACQ / INS	DESCRIPTION	SPEC
A1010	Telecommunication Outlet	1	CC	Telecommunication outlet location.	27 31 00
A1012	Telephone, Wall Mounted, 1 Line	1	CC	Telephone, wall mounted, 1 line.	27 31 00

A5145	Hook, Garment, Double, SS, Surface Mounted	AR	CC	A surface mounted, satin finish stainless steel, double garment hook. Equipped with a concealed mounting bracket that is secured to a concealed wall plate. For general purpose use throughout the facility to hang various items of apparel.	10 28 00
C0044	Frame, Apron, 1 Drawer, 4x30x22	1	CC	Apron frame with one standard drawer. Also referred to as a drawer frame or table frame. Used for a knee space as a combination frame and drawer to support a top between base cabinets or a base cabinet and a wall.	12 32 00
C0045	Frame, Apron, 1 Drawer, 4x36x22	2	CC	Apron frame with one standard drawer. Also referred to as a drawer frame or table frame. Used for a knee space as a combination frame and drawer to support a top between base cabinets or a base cabinet and a wall.	12 32 00
C06M0	Cabinet, U/C/B, 1 PBD, 2 DR, 1 File DR, 30x18x22	3	CC	Cabinet, U/C/B, 1 PBD, 2 DR, 1 File DR, 30x18x22	12 32 00
CT030	Countertop, High Pressure Laminate	AR	CC	High pressure laminate countertop (composition of wood particle core with plastic laminate surface) having a hard smooth surface finish, standard thickness of 1", and a 4" butt backsplash/curb. Also referred to as a work surface or work top. Available in a wide choice of colors, patterns, and depths. Used in general purpose areas requiring a basic work surface arrangement with limited heat resistance and poor chemical resistance. Pricing based upon a 24" depth.	12 36 00
F0275	Chair, Swivel, High Back	2	W	Highback contemporary swivel chair, 41" high X 23" wide X 23" deep with five (5) caster swivel base and arms. Chair may be used at desks or in conference rooms. Back and seat are foam padded and upholstered with either woven textile fabric or vinyl.	
F2000	Basket, Wastepaper, Round, Metal	1	W	Round wastepaper basket, approximately 18" high X 16" diameter. This metal unit is used to collect and temporarily store small quantities of paper refuse in patient rooms, administrative areas and nursing stations.	



F3050	Whiteboard, Dry Erase	1	CC	Whiteboard unit, approximately 36" H x 48" W consisting of a white porcelain enamel writing surface with an attached chalk tray. Magnetic surface available. Image can be easily removed with a standard chalkboard eraser. For use with water color pens. Unit is ready to hang.	
F3200	Clock, Battery, 12" Diameter	1	W	Clock, 12" diameter. Round surface, easy to read numbers with sweep second hand. Wall mounted unit for use when impractical to install a fully synchronized clock system. Battery operated, (batteries not included).	
M1801	Computer, Microprocessing, w/Flat Panel Monitor	1	W	Desk top microprocessing computer. The unit shall consist of a central processing mini tower, flat panel monitor, keyboard, mouse and speakers. The system shall have the following minimum characteristics: a 2.8 GHz Pentium processor; 512 MB memory; 80GB hard drive; 32/48x CD-ROMDVD combo; a 3.5" floppy drive; 1.44MB network interface card; video 32 MB NVIDIA; a 15 inch flat panel color monitor. The computer is used throughout the facility to input, manipulate and retrieve information.	
M1840	Printer/Copier/Fax Combination	1	W	Multifunctional printer, fax, scanner and copier (PFC) all-in-one machine.	
X1425	Imager, Laser (1024 X 1024) (Din/PACS)	1	CF	Laser imager. An infrared laser beam is scanned across the film by a precision rotating polygon, while correcting optic focus and controlling the beam's intensity. The characteristics and components include an automatic film handling system and uses 10" X 14" IR film. It can be interfaced to additional imaging modalities with optional interface kit. For use with digital output imaging modalities.	

X4112	Console, PACS, Remote View, 1k X 1k, 2 Monitors	1	CF	Two monitor remote viewing station for picture archiving and retrieval (PACS) system. This station is for use by providers inside or outside of radiology to review images. Station includes local image storage, image manipulation, and simultaneous display of multiple images on two 1024 x 1024 image display CRT's. Images are stored on a resident hard disk and roll off the disk as more recent images are sent to the station. Provider may request images from the PACS. Unit must be connected to the PACS by LAN for image and result receipt. This station is for use in areas like radiologist's offices and the E.R.. where a more comprehensive system is required. Console must be DICOM compliant. Input may be by keyboard, mouse, trackball or voice activated commands.	
X6175	Components of Radiographic/Fluoro Unit, Angio, Biplane, Digital	1	CF	This system is specifically designed to perform biplane radiographic/fluoroscopic examinations in the Special Procedures Department. On-line digital angio image processing will provide instant availability of images for review. This units characteristics and components include: 100 kW micro-processor controlled X-ray generators, C-arm and U arm with 9" multi-field Image Intensifier, integrated X-ray tube unit. The Digital Spot Imaging for both the AP and Lateral planes shall consist of a computer, keyboard with acquisition and viewing monitor and a slave monitor. The system shall be DICOM 3.0 compatible, for easy linkage to filmless image management systems and review stations. It is recommended that the TV monitors be ceiling suspended.	

XACV1 System Component Room

JSN	NAME	QTY	ACQ / INS	DESCRIPTION	SPEC
A1010	Telecommunication Outlet	AR	CC	Telecommunication outlet location.	27 31 00
A1012	Telephone, Wall Mounted, 1 Line	1	CC	Telephone, wall mounted, 1 line.	27 31 00

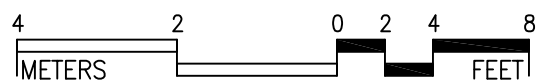
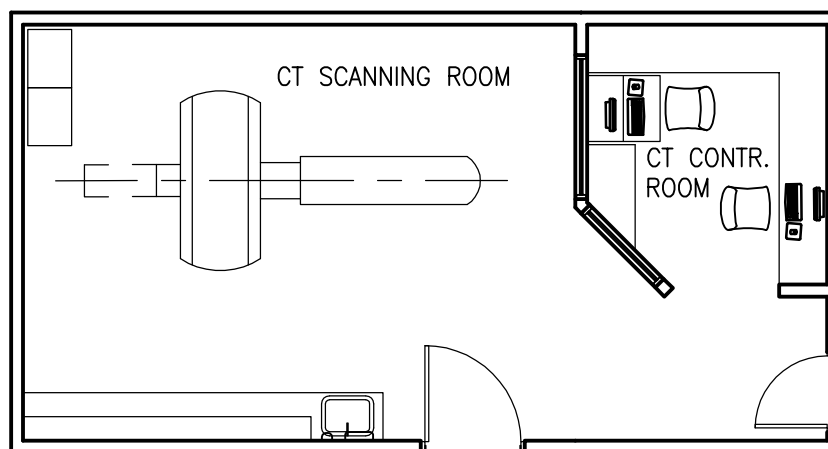


F2000	Basket, Wastepaper, Round, Metal	1	W	Round wastepaper basket, approximately 18" high X 16" diameter. This metal unit is used to collect and temporarily store small quantities of paper refuse in patient rooms, administrative areas and nursing stations.	
X6175	Components of Equipment for Radiographic/Fluoro Unit, Angio, Biplane, Digital	1	CF	May include (depending on type of equipment):	



CT Suite

Key Plan



$$1/8" = 1'-0"$$

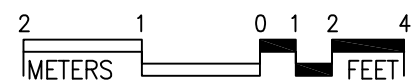
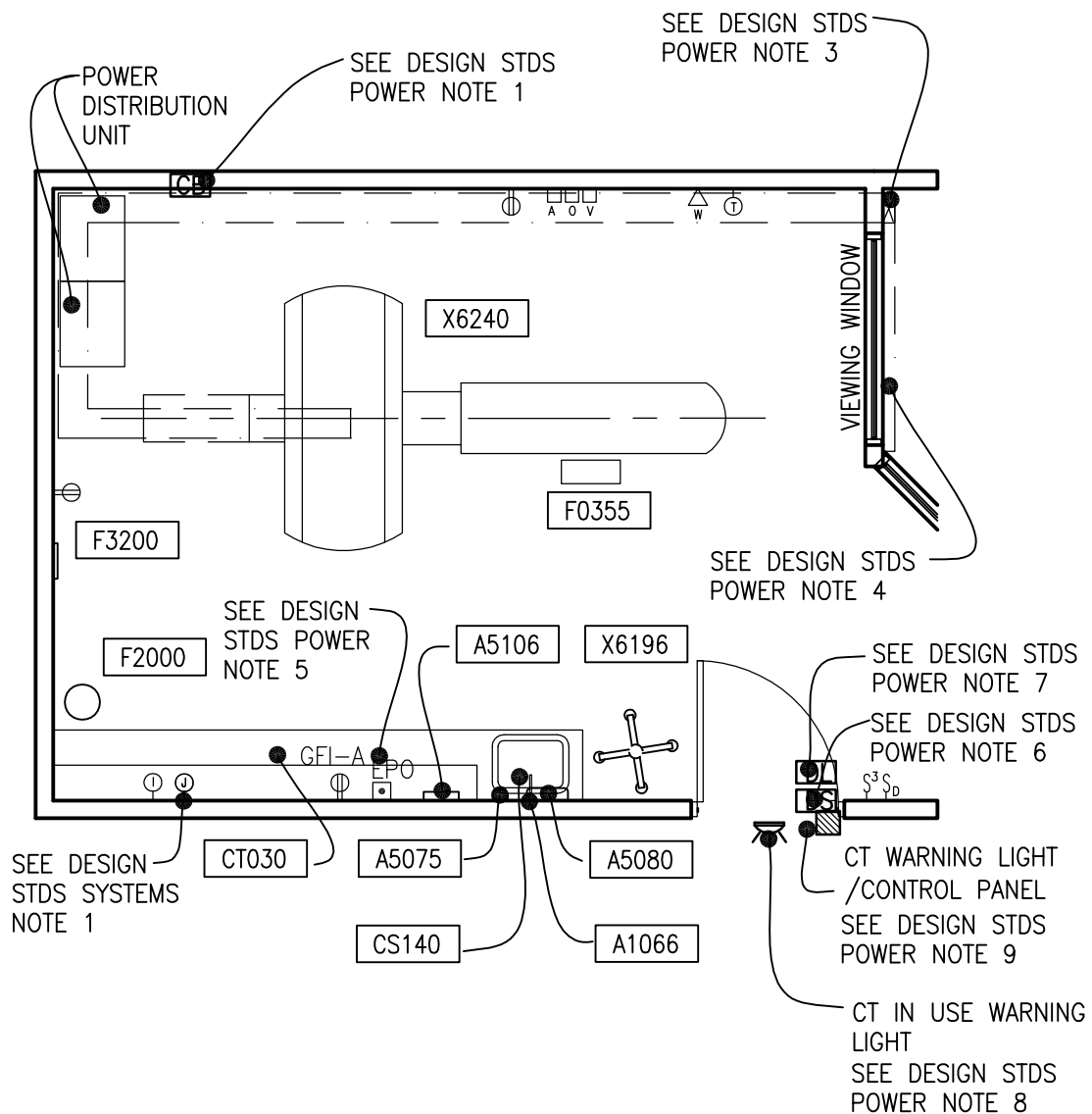
Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.

CT Scanning Room (XCTS1)

430 NSF

Floor Plan

39.9 NSM



$$\frac{3}{16}'' = 1'-0''$$

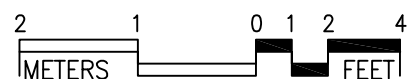
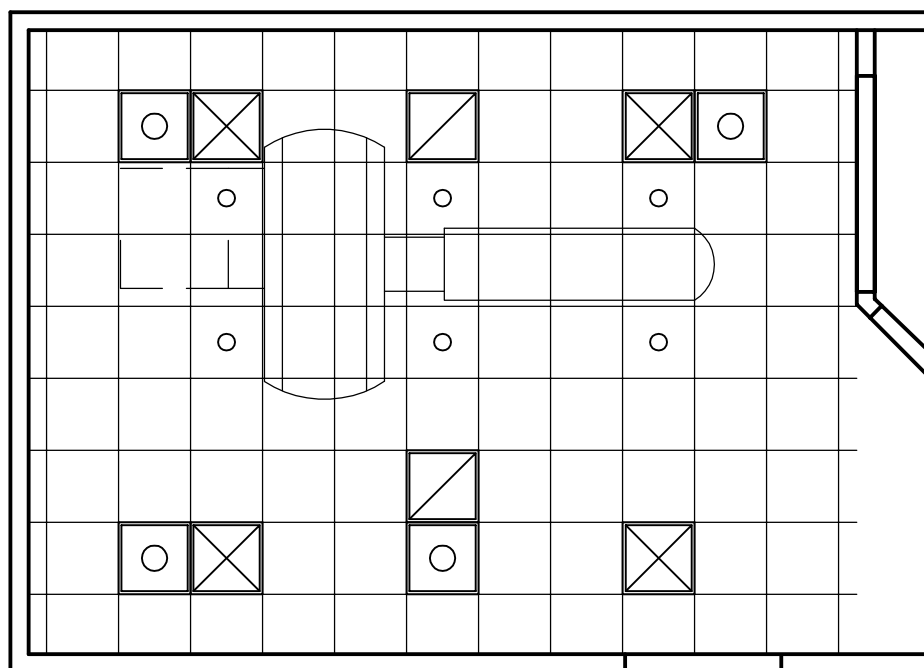
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CT Scanning Room (XCTS1)

430 NSF

Reflected Ceiling Plan

39.9 NSM



$$\frac{3}{16}'' = 1'-0''$$

The locations and quantities of the air outlets and inlets are tentative and may not represent the optimum design solution(s) envisioned by the designer, who shall study the layout, calculate air volumes, and may alter the arrangement shown in the reflected ceiling plan, as required, to produce a project-specific air distribution system design.

Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.

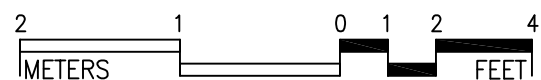
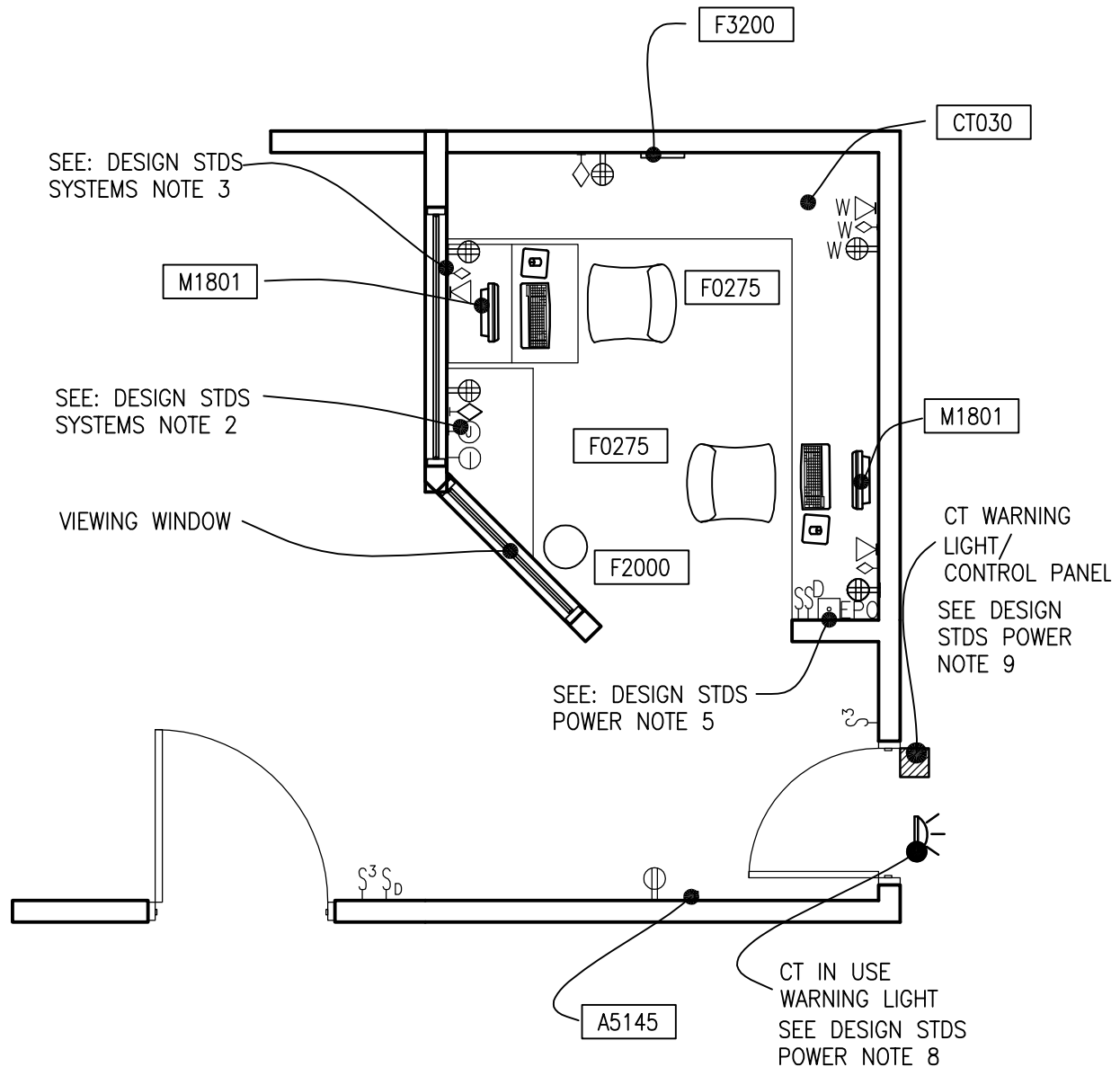


CT Control Room (XCTC1)

140 NSF

Floor Plan

13.0 NSM



1/4" = 1'-0"

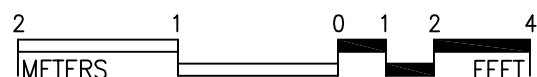
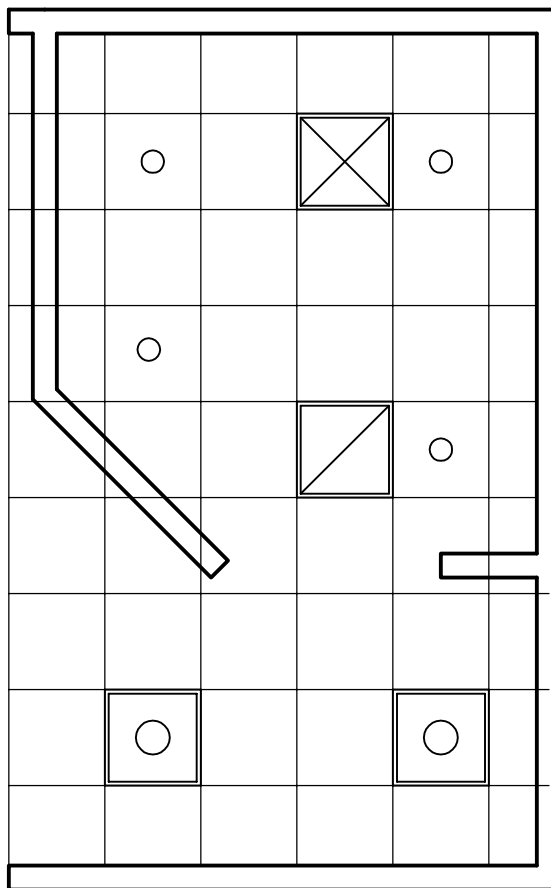
Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.

CT Control Room (XCTC1)

140 NSF

Reflected Ceiling Plan

13.0 NSM



$$1/4" = 1'-0"$$

The locations and quantities of the air outlets and inlets are tentative and may not represent the optimum design solution(s) envisioned by the designer, who shall study the layout, calculate air volumes, and may alter the arrangement shown in the reflected ceiling plan, as required, to produce a project-specific air distribution system design.

Guide plates are graphical representations of selected room types, illustrating the integration of space, components, systems, and equipment. They provide typical configurations and general technical guidance, and are not intended to be project specific. Specific infrastructure design requirements are contained in VA Design Manuals and Space Planning Criteria located in the VA Technical Information Library.



CT SUITE (XCTS1 & XCTC1): Design Standards

ARCHITECTURAL

Ceiling:	Acoustical Tile Ceiling
Ceiling Height:	Coordinate with Equip. Manuf.
Wall Finish:	Paint
Wainscot:	--
Base:	Vinyl Base
Floor Finish:	Vinyl Composition Tile
Sound Protection:	--

Notes:

1. Provide a 4'-0" wide shielded door into the CT Scanning Room
2. Provide a shielded viewing window from CT Control Room to the CT Scanning Room.

LIGHTING

CT Scanning Room

General: Fluorescent lights will provide higher illumination level up to 50 FC during patient transfer on and from the table, equipment setting, room cleaning, and equipment maintenance.

Special: Incandescent luminaires controlled by dimmer will provide lower illumination levels down to 5 FC during scanning. Luminaires shall be located to avoid direct glare for patient comfort.

CT Control Room

General: Fluorescent lights will provide higher illumination level up to 30 FC for room cleaning, and equipment maintenance.

Special: Incandescent luminaires controlled by dimmer will provide lower illumination levels down to 5 FC during scanning for monitor viewing.

Notes:

1. 2'x2' fluorescent recessed luminaire, acrylic prismatic lens, with (2) FB031T8-U lamps, 4100 K, CRI=85 (Minimum)
2. 8-inch dia., recessed incandescent downlight, with recessed Fresnel

lens, and 150W/A21 inc. horizontally mounted lamp.

3. 2'x4' fluorescent recessed luminaire, acrylic prismatic lens, with (3) F32T8 lamps, 3500 K.
4. CT Scanning Room fluorescent lighting controlled by 3-way switches located at entrance door and in control area
5. CT Scanning Room incandescent downlighting controlled by 3-way dimmers located in CT room and control area.
6. CT Control Room incandescent downlighting controlled by separate dimmer located in control area.

POWER

The electrical power as shown is to be used as a guide only. Equipment locations, dimensions and wiring requirements should be per the CT system suppliers' equipment drawings. Electrical trades should provide necessary conduits, openings, bushings, nipples, flexible conduits, surface, recessed, wall mounted and floor raceways, etc., as required at the various junction boxes, duct and conduit terminations to allow proper connections of the CT equipment and related accessories

Emergency:

Emergency power for CT equipment, controls, and selected receptacles as determined by the Hospital

Notes:

1. 480V, 3P-150A circuit breaker, with adjustable trip, shunt trip, flush mounted. Run empty 50 mm (2"C) from circuit breaker to the floor duct.
2. 300 mm x 90 mm (12" W x 3-1/2" D) multi-compartment flush floor duct with screw-on cover. Connect to vertical wall duct.
3. 250 mm x 90 mm (10" W x 3-1/2" D) multi-compartment surface vertical wall duct with screw-on cover. Connect to CT floor duct and horizontal wall duct.

4. 120 mm x 90 mm (4-3/4" W x 3-1/2" D) multi-compartment surface wall duct with screw-on cover. Connect to vertical wall duct.
5. Emergency Power Off pushbutton station. Refer to specific radiology equipment requirements for EPO. Connect to shunt trip at main disconnect.
6. Door switch with NO/NC contacts. Connect to CT system control circuit. CT should shut-off upon opening of the entrance door.
7. Magnetic door interlock with CT controller to prevent interruption of scanning procedure (optional).
8. Warning light with wording "CT IN USE, DO NOT ENTER". Provide interface with CT controller via interface relay.
9. CT warning light interface relay with low voltage power supply to match CT equipment requirements.

COMMUNICATION/SPECIAL SYSTEMS

ADP:	Yes
Data:	Yes
Telephone:	Yes
Intercom:	Yes
Nurse Call:	--
Public Address:	--
Radio/Entertainment:	--
MATV:	--
CCTV:	Yes, note 1 & 2.
MID:	--
Security/Duress:	--
VTEL:	--
VA Satellite TV:	--

Notes:

1. Junction box for CCTV camera with conduit to Control area.
2. Junction box for CCTV monitor.
3. PACS:two 4-port telecommunication outlets per PACS station

HEATING, VENTILATING AND AIR CONDITIONING

Inside Design Conditions:	70 °F - 75 °F (21 °C - 24 °C)
	30% to 60% Relative humidity
Minimum Air Changes per hour: - Supply Air	
	6 for CT Scanning Room
	6 for CT Control Room
100% Exhaust:	No
100% Outside air	No

Room Air Balance: Positive for all rooms

Dedicated Exhaust System: No

Occupancy: 4 for CT Scanning Room

2 for CT Control Room

AC Load-(Equipment): 17,000 Btuh –
22,000BTUH (5,000W – 6,500 W) for CT
Scanning Room.
4,000 Btuh – 8,500 Btuh (1,200W-2,500
W) for CT Control Room.

AC Load-Lighting: 2.0 W/SF (21 W/M²)
in CT Scanning Room
1.5W/SF (17 W/M²) in CT Control Room.

Notes:

1. Verify cooling loads and other specific requirements with the equipment manufacturer on a specific project.
2. Certain CT Manufacturers require, and provide a dedicated CT Scanner chiller. This chiller should be installed per CT manufacturer's requirements.

PLUMBING AND MEDICAL GASES

Cold Water:	Yes
Hot Water:	Yes
Laboratory Air:	--
Laboratory Vacuum:	--
Sanitary Drain:	Yes
Reagent grade Water:	--
Medical Air:	Yes
Medical Vacuum:	Yes
Oxygen:	Yes

Notes:

1. Provide a floor drain to coordinate with chilled water equipment when required
2. Provide a backflow prevention device when a secondary emergency water connection to the chilled water equipment is required as a backup

CT SUITE (XCTS1 & XCTC1): Equipment Guide List

XCTS1 CT Scanning Room					
JSN	NAME	QTY	ACQ / INS	DESCRIPTION	SPEC
A1010	Telecommunication Outlet	1	CC	Telecommunication outlet location.	27 31 00
A1012	Telephone, Wall Mounted, 1 Line	1	CC	Telephone, wall mounted, 1 line.	27 31 00
A1066	Mirror, Float Glass, With SS Frame	1	CC	A high quality 1/4" polished float glass mirror 36X18, framed in a one-piece, bright polished, stainless steel channel frame with 90° mitered corners. All edges of the mirror are protected by absorbing filler strips. Mirror has a galvanized steel back with integral horizontal hanging brackets and wall hanger for concealed mounting. For mounting above single wall mounted lavatories located in toilet areas, Doctors examination offices, etc. May also be used above double lavatories, either wall or countertop mounted, found in restroom areas.	10 28 00
A5075	Dispenser, Soap, Disposable	1	W	Disposable soap dispenser. One-handed dispensing operation. Designed to accommodate disposable soap cartridge and valve.	
A5080	Dispenser, Paper Towel, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, single-fold, paper towel dispenser. Dispenser features: tumbler lock; front hinged at bottom; and refill indicator slot. Minimum capacity 400 single-fold paper towels. For general purpose use throughout the facility.	10 28 00
A5106	Waste Disposal Unit, Sharps w/Glove Dispenser	1	W	The unit is designed for the disposal of sharps and complies with OSHA guidelines for the handling of sharps. It shall house a 5 quart container and be capable of being mounted on a wall. It shall have a glove dispenser attached. The unit shall be secured by a locked enclosure.	

C03H0	Cabinet, U/C/B, 2 Half Drawers, 3 DR, 36x30x22	1	CC	Standing height under counter base cabinet with two half width drawers side-by-side above three full width drawers. Also referred to as a drawer cabinet. For general purpose use throughout the facility.	12 32 00
C03J0	Cabinet, U/C/B, 8 Half Drawers, 36x30x22	1	CC	Standing height under counter base cabinet with eight half width drawers of equal height. Also referred to as a drawer cabinet. For general purpose use throughout the facility.	12 32 00
C03P0	Cabinet, Sink, U/C/B, 2 Door, 30" W	1	CC	Standing height under counter base sink cabinet. 36" H x 30" W x 22" D with two solid hinged doors. Also referred to as a double-door sink cabinet. For general purpose use throughout the facility where a sink is to be used. Coordinate actual clear cabinet dimension with the actual outside dimension of sink that is specified to ensure that they are compatible.	12 32 00
CE030	Cabinet, W/H, 2 SH, 2 GDO, Sloping Top, 38x30x13	1	CC	Wall hung cabinet with two adjustable shelves, framed-glass hinged doors, and sloping top. Also referred to as a framed-glass hinged double door wall case. For general purpose use throughout the facility.	12 32 00
CS140	Sink, SS, Single Compartment, 10x14x16 ID	1	CC	Single compartment stainless steel sink, drop-in, self-rimming, ledge-type, connected with a drain and provided with a mixing faucet. It shall also be provided with punched fixture holes on 4" center, integral back ledge to accommodate deck-mounted fixtures, brushed/polished interior and top surfaces, and sound deadened. Recommended for use in suspended or U/C/B sink cabinets having a high plastic laminate or Chemsurf laminate countertop/work surface. Coordinate actual outside sink dimensions with the actual clear dimension of cabinet specified to ensure that they are compatible. For general purpose use throughout the facility.	22 40 00

CT030	Countertop, High Pressure Laminate	AR	CC	High pressure laminate countertop (composition of wood particle core with plastic laminate surface) having a hard smooth surface finish, standard thickness of 1", and a 4" butt backsplash/curb. Also referred to as a work surface or work top. Available in a wide choice of colors, patterns, and depths. Used in general purpose areas requiring a basic work surface arrangement with limited heat resistance and poor chemical resistance. Pricing based upon a 24" depth.	12 36 00
F0355	Footstool, Straight	1	W	Step stool. Used to assist patients getting on and off exam or surgical tables. Fitted with electrically conductive rubber tips.	
F2000	Basket, Wastepaper, Round, Metal	1	W	Round wastepaper basket, approximately 18" high X 16" diameter. This metal unit is used to collect and temporarily store small quantities of paper refuse in patient rooms, administrative areas and nursing stations.	
F3200	Clock, Battery, 12" Diameter	1	W	Clock, 12" diameter. Round surface, easy to read numbers with sweep second hand. Wall mounted unit for use when impractical to install a fully synchronized clock system. Battery operated, (batteries not included).	
M0750	Flowmeter, Air, Connect w/50 PSI Supply	1	W	Air flowmeter. Unit has a stainless steel needle valve with clear flowtube for connection to 50 PSI air outlet from central pipeline system. Requires the appropriate adapter for connection to the wall outlet and fitting to connect to tubing. Database prices reflect fittings with an attached DISS power outlet. Other outlet and adapter configurations are available.	22 63 00
M0755	Flowmeter, Oxygen, Low Flow	1	W	Oxygen flowmeter. Consists of a clear crystal flowtube calibrated to 3.5 or 8 LPM depending on manufacturer. For oxygen regulation in hospital settings. Database pricing includes DISS fitting and DISS power outlet and wall adapter. Other fitting and adapter configurations are available.	22 63 00

M0765	Regulator, Vacuum	1	W	An air/oxygen mixer is designed to accurately control a pressurized gas mixing with an oxygen concentration. Unit contains audible alarms to warn of supply failure, an auxiliary outlet and a oxygen concentration control adjustment range from 21% to 100%. The unit can also be used to supply an accurate pre-mixed gas source to respiration or ventilator units. A specific application may require an additional air inlet filter/water trap.	22 62 00
X3150	Rack, Apron/Gloves, Wall Mounted	1	CC	Apron and gloves rack. This is a wall unit which holds aprons and gloves. The body is heavy gauge steel finish in gray or green baked enamel, glove and apron holding arms are aluminum. The unit's convenient on wall storage will prolong the useful life of your protection aprons by helping prevent damage to internal components.	
X6196	Injector, CT	1	CF	This unit is a specialized radiographic system that provides sharp, well-defined visual images of the vascular anatomy. The injector introduces a vision radiopaque fluid (contrast medium) into an artery or vein through a small catheter, making vessels contrast with their more radiolucent surrounding. The unit incorporates an electromechanical or pneumatically driven syringe to deliver the contrast medium. The syringe assemblies consist of an electric motor connected to a jackscrew that moves the syringe piston into or out of the syringe barrel. The unit is used in hospitals with radiographic procedures. The unit can be ceiling, wall, or remote stand mounted.	

X6240	Radiographic Unit, Computerized Tomography (CT)	1	CF	The CT Scanner System is a noninvasive radiographic technique that involves the reconstruction of a tomographic plane of the body (four slices per revolution) from a large number of collected x-ray absorption measurements taken during a scan around the body's periphery. The CT System shall be a single gantry, whole body scanning system appropriate to support tertiary care facilities with an annual projected workload of less than 5,500 separate studies. System includes DICOM 3.0 or latest version software protocol. System to be procured with turnkey installation.	
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XCTC1 Control Room

JSN	NAME	QTY	ACQ / INS	DESCRIPTION	SPEC
A1010	Telecommunication Outlet	1	CC	Telecommunication outlet location.	27 31 00
A1012	Telephone, Wall Mounted, 1 Line	1	CC	Telephone, wall mounted, 1 line.	27 31 00
A5145	Hook, Garment, Double, SS, Surface Mounted	1	CC	A surface mounted, satin finish stainless steel, double garment hook. Equipped with a concealed mounting bracket that is secured to a concealed wall plate. For general purpose use throughout the facility to hang various items of apparel.	10 28 00
C0044	Frame, Apron, 1 Drawer, 4x30x22	1	CC	Apron frame with one standard drawer. Also referred to as a drawer frame or table frame. Used for a knee space as a combination frame and drawer to support a top between base cabinets or a base cabinet and a wall.	12 32 00
C0045	Frame, Apron, 1 Drawer, 4x36x22	2	CC	Apron frame with one standard drawer. Also referred to as a drawer frame or table frame. Used for a knee space as a combination frame and drawer to support a top between base cabinets or a base cabinet and a wall.	12 32 00
C06M0	Cabinet, U/C/B, 1 PBD, 2 DR, 1 File DR, 30x18x22	3	CC	Cabinet, U/C/B, 1 PBD, 2 DR, 1 File DR, 30x18x22	12 32 00

CT030	Countertop, High Pressure Laminate	AR	CC	High pressure laminate countertop (composition of wood particle core with plastic laminate surface) having a hard smooth surface finish, standard thickness of 1", and a 4" butt backsplash/curb. Also referred to as a work surface or work top. Available in a wide choice of colors, patterns, and depths. Used in general purpose areas requiring a basic work surface arrangement with limited heat resistance and poor chemical resistance. Pricing based upon a 24" depth.	12 36 00
F0275	Chair, Swivel, High Back	2	W	Highback contemporary swivel chair, 41" high X 23" wide X 23" deep with five (5) caster swivel base and arms. Chair may be used at desks or in conference rooms. Back and seat are foam padded and upholstered with either woven textile fabric or vinyl.	
F2000	Basket, Wastepaper, Round, Metal	1	W	Round wastepaper basket, approximately 18" high X 16" diameter. This metal unit is used to collect and temporarily store small quantities of paper refuse in patient rooms, administrative areas and nursing stations.	
F3050	Whiteboard, Dry Erase	1	CC	Whiteboard unit, approximately 36" H x 48" W consisting of a white porcelain enamel writing surface with an attached chalk tray. Magnetic surface available. Image can be easily removed with a standard chalkboard eraser. For use with water color pens. Unit is ready to hang.	
F3200	Clock, Battery, 12" Diameter	1	W	Clock, 12" diameter. Round surface, easy to read numbers with sweep second hand. Wall mounted unit for use when impractical to install a fully synchronized clock system. Battery operated, (batteries not included).	



M1801	Computer, Microprocessing, w/Flat Panel Monitor	1	W	Desk top microprocessing computer. The unit shall consist of a central processing mini tower, flat panel monitor, keyboard, mouse and speakers. The system shall have the following minimum characteristics: a 2.8 GHz Pentium processor; 512 MB memory; 80GB hard drive; 32/48x CD-ROMDVD combo; a 3.5" floppy drive; 1.44MB network interface card; video 32 MB NVIDIA; a 15 inch flat panel color monitor. The computer is used throughout the facility to input, manipulate and retrieve information.	
M1840	Printer/Copier/Fax Combination	1	W	Multifunctional printer, fax, scanner and copier (PFC) all-in-one machine.	
X1425	Imager, Laser (1024 X 1024) (Din/PACS)	1	CF	Laser imager. An infrared laser beam is scanned across the film by a precision rotating polygon, while correcting optic focus and controlling the beam's intensity. The characteristics and components include an automatic film handling system and uses 10" X 14" IR film. It can be interfaced to additional imaging modalities with optional interface kit. For use with digital output imaging modalities.	
X4112	Console, PACS, Remote View, 1k X 1k, 2 Monitors	1	CF	Two monitor remote viewing station for picture archiving and retrieval (PACS) system. This station is for use by providers inside or outside of radiology to review images. Station includes local image storage, image manipulation, and simultaneous display of multiple images on two 1024 x 1024 image display CRT's. Images are stored on a resident hard disk and roll off the disk as more recent images are sent to the station. Provider may request images from the PACS. Unit must be connected to the PACS by LAN for image and result receipt. This station is for use in areas like radiologist's offices and the E.R.. where a more comprehensive system is required. Console must be DICOM compliant. Input may be by keyboard, mouse, trackball or voice activated commands.	

X6240	Components of Parent Item: Radiographic Unit, Computerized Tomography (CT) may include: Workstation with LCD Monitors, Injector Control and electronic station, and operator console and computer	1	CF	The CT Scanner System is a noninvasive radiographic technique that involves the reconstruction of a tomographic plane of the body (four slices per revolution) from a large number of collected x-ray absorption measurements taken during a scan around the body's periphery. The CT System shall be a single gantry, whole body scanning system appropriate to support tertiary care facilities with an annual projected workload of less than 5,500 separate studies. System includes DICOM 3.0 or latest version software protocol. System to be procured with turnkey installation.	
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